AUTHOR INDEX

June 1998

Akashi, K-i., 2973
Åkerman, B., 3140
Alila, H., 2802
Allen, J., 3226
Andersen, C., 3031
Andreu, J. M., 2760
Anson, B. D., 2963

Barman, T., 3120
Barranger-Mathys, M., 3023
Barry, P. H., 2903
Benz, R., 3031
Berendsen, H. J. C., 2786
Betz, W. J., 3003
Beugin, S., 3198
Bezrukov, S. M., 2918
Blachly-Dyson, E., 2926
Bloomfield, V. A., 3152
Brand, J. G., 2918
Brandmeier, B., 3083
Branlant, G., 3165
Brettel, K., 3173
Bretthorst, G. L., 3190
Bruinsma, R. F., 2862
Brune, M., 3120
Bungay, P. M., 3302
Bustamante, C., 2823, 2830

Cafiso, D. S., 3023
Casals, C., 2983
Chacón, P., 2760
Chalovich, J. M., 3072
Chapman, G. B., 3292
Cokelet, G. R., 3292
Colombini, M., 2926
Corrie, J. E. T., 3083, 3093
Craik, J. S., 3083

d'Avignon, D. A., 3190
de Grooth, B. G., 2840
Delteil, C., 3015
Díaz, J. F., 2760
Diaz-Cruz, M. S., 2876
Drepper, F., 3226
Dubochet, J., 2815
Duguid, J. G., 2802

Earnhardt, J. N., 3182
Edwards, K., 3198
Eker, A. P. M., 2840
Ellena, J. F., 3023
Esteban, M., 2876

Featherstone, D. E., 2945
Feigin, A. M., 2918
Flach, C. R., 3273
Forte, M., 2926
Francis, J., 2776
Franklin, C., 3023
Frisbie, S. M., 3072
Frisken, B. J., 2996

Gabellieri, E., 3165
Gergely, J., 3111
Gericke, A., 3273
Gervasoni, P., 3256
Gibson, C. C., 3302
Gluckman, B. J., 2776
Goh, M. C., 3211
Goldman, Y. E., 3093
Golzio, M., 3015
Gonnelli, M., 3165
Goodfellow, J. M., 2747
Greve, J., 2840, 3250
Groscurth, P., 3256
Gu, L., 2889

Hartmann, H. A., 2945
Hirai, M., 3010
Hladky, S. B., 2912
Holtzer, A., 3190
Holtzer, M. E., 3190
Homsher, E., 3044, 3059
Hopkins, S. C., 3093
Hoshi, T., 2953
Hunter, D. G., 2996

Ibragimova, G. T., 2906
Irving, M., 3083, 3093
Itoh, H., 2973

Jayasinghe, S., 3023

Karlsson, G., 3198
Katritch, V., 2815
Kaulin, Y. A., 2918
Keller, D., 2743
Keng, P. C., 3282
Keough, K. M. W., 2983
Kinosita, K., Jr., 2973
Koller, T., 2815
Korgel, B. A., 3264
Kovbasnjuk, O. N., 3302
Krinsky, V., 2850
Kürschner, M., 3031

Laipis, P. J., 3182
Laurie, B., 2815
Lee, D. A., 2747
Lee, D. M., 3044
Lesieur, S., 3198
Leuba, S. H., 2823, 2830
Li, C., 2802
Lin, X., 3226
Lindner, P., 3256
Lionne, C., 3120
Liu, W., 2889
Logan, M. J., 2802
Luo, Y., 3111

Macdonald, I. D. G., 3241
Malev, V. V., 2918
Marten, I., 2953
Martinac, B., 2889
Mashl, R. J., 2862
Mathis, P., 3226
Matsuno, M., 3217
Mealy, T. R., 3273
Mendelsohn, R., 3273
Mendieta, J., 2876
Midson, C., 2926
Miyata, H., 2973
Monbouquette, H. G., 3264
Mora, M-P., 3015
Morán, F., 2760
Munro, A. W., 3241

Nag, K., 2983
Netoff, T. I., 2776
Nielsen, K., 3031

Ollivon, M., 3198
Otto, C., 3250
Overman, S. A., 3217

Paige, M. F., 3211
Pantos, E., 2760
Perez-Gil, J., 2983
Piroddi, N., 3120
Plückthun, A., 3256
Poggesi, C., 3120
Polm, M., 3173
Pumir, A., 2850

Qian, M., 3182

Rahuel-Clermont, S., 3165
Rainey, J. K., 3211
Rao, S. N., 3131
Raynaud, C., 3015
Regnier, M., 3044, 3059
Richmond, J. E., 2945
Roberts, W. M., 2963
Rolland, A., 2802
Rols, M-P., 3015
Romey, G., 2850
Roux, B., 2744
Rouzina, I., 3152
Ruano, M. L. F., 2983
Ruben, P. C., 2945
Ruff, R. L., 2745

Sabido-David, C., 3083, 3093
Schagina, L. V., 2918
Schenk, W. A., 3031
Schiff, S. J., 2776
Seaton, B. A., 3273
Segers-Nolten, G. M. J., 3250
Semenza, G., 3256
Shi, M., 2802
Sijtsema, N. M., 3250
Silverman, D. N., 3182
Smith, L. C., 2802
Smith, W. E., 3241
So, P., 2776
Sogo, J., 2815
Song, J., 2926
Sparrow, J. T., 2802
Spring, K. R., 3302
Stasiak, A., 2815
Stehle, R., 3120
Stewart, J., 2983
Strambini, G. B., 3165
Sukhorukov, V. L., 3031

Takemoto, J. Y., 2918
Takeuchi, H., 3217
Takizawa, T., 3010
Tao, T., 3111
Tauler, R., 2876
Teeter, J. H., 2918
Teissié, J., 3015
Tesi, C., 3120
Thomas, G. J., Jr., 3217
Tieleman, D. P., 2786
Tomlinson, E., 2802
Travers, F., 3120
Trentham, D. R., 3083
Tripathi, S., 2912
Tsai, M. A., 3282
Tu, C., 3182

van der Werf, K. O., 2840
van Holde, K., 2823, 2830
van Hulst, N. F., 2840
van Noort, S. J. T., 2840
van Zanten, J. H., 3264
Venturoli, G., 3226
Verhoeven, A. J., 3250
Vinckier, A., 3256

Wade, R. C., 2906
Waugh, R. E., 3282
Webb, M. R., 3120
Williams, J. C., 3226
Worthman, L. A. D., 2983
Wu, F., 3273
Wu, J-L., 3111
Wu, L-G., 3003
Wyman, C., 2840

Xia, P., 3302
Xu, S., 3072

Yu, L. C., 3072

Zaugg, F., 3256
Ziegler, U., 3256
Zimmermann, U., 3031
Zlatanova, J., 2823, 2830

AUTHOR INDEX

June 1998

Akashi, K-i., 2973
Åkerman, B., 3140
Alila, H., 2802
Allen, J., 3226
Andersen, C., 3031
Andreu, J. M., 2760
Anson, B. D., 2963

Barman, T., 3120
Barranger-Mathys, M., 3023
Barry, P. H., 2903
Benz, R., 3031
Berendsen, H. J. C., 2786
Betz, W. J., 3003
Beugin, S., 3198
Bezrukov, S. M., 2918
Blachly-Dyson, E., 2926
Bloomfield, V. A., 3152
Brand, J. G., 2918
Brandmeier, B., 3083
Branlant, G., 3165
Brettel, K., 3173
Bretthorst, G. L., 3190
Bruinsma, R. F., 2862
Brune, M., 3120
Bungay, P. M., 3302
Bustamante, C., 2823, 2830

Cafiso, D. S., 3023
Casals, C., 2983
Chacón, P., 2760
Chalovich, J. M., 3072
Chapman, G. B., 3292
Cokelet, G. R., 3292
Colombini, M., 2926
Corrie, J. E. T., 3083, 3093
Craik, J. S., 3083

d'Avignon, D. A., 3190
de Grooth, B. G., 2840
Delteil, C., 3015
Díaz, J. F., 2760
Diaz-Cruz, M. S., 2876
Drepper, F., 3226
Dubochet, J., 2815
Duguid, J. G., 2802

Earnhardt, J. N., 3182
Edwards, K., 3198
Eker, A. P. M., 2840
Ellena, J. F., 3023
Esteban, M., 2876

Featherstone, D. E., 2945
Feigin, A. M., 2918
Flach, C. R., 3273
Forte, M., 2926
Francis, J., 2776
Franklin, C., 3023
Frisbie, S. M., 3072
Frisken, B. J., 2996

Gabellieri, E., 3165
Gergely, J., 3111
Gericke, A., 3273
Gervasoni, P., 3256
Gibson, C. C., 3302
Gluckman, B. J., 2776
Goh, M. C., 3211
Goldman, Y. E., 3093
Golzio, M., 3015
Gonnelli, M., 3165
Goodfellow, J. M., 2747
Greve, J., 2840, 3250
Groscurth, P., 3256
Gu, L., 2889

Hartmann, H. A., 2945
Hirai, M., 3010
Hladky, S. B., 2912
Holtzer, A., 3190
Holtzer, M. E., 3190
Homsher, E., 3044, 3059
Hopkins, S. C., 3093
Hoshi, T., 2953
Hunter, D. G., 2996

Ibragimova, G. T., 2906
Irving, M., 3083, 3093
Itoh, H., 2973

Jayasinghe, S., 3023

Karlsson, G., 3198
Katritch, V., 2815
Kaulin, Y. A., 2918
Keller, D., 2743
Keng, P. C., 3282
Keough, K. M. W., 2983
Kinosita, K., Jr., 2973
Koller, T., 2815
Korgel, B. A., 3264
Kovbasnjuk, O. N., 3302
Krinsky, V., 2850
Kürschner, M., 3031

Laipis, P. J., 3182
Laurie, B., 2815
Lee, D. A., 2747
Lee, D. M., 3044
Lesieur, S., 3198
Leuba, S. H., 2823, 2830
Li, C., 2802
Lin, X., 3226
Lindner, P., 3256
Lionne, C., 3120
Liu, W., 2889
Logan, M. J., 2802
Luo, Y., 3111

Macdonald, I. D. G., 3241
Malev, V. V., 2918
Marten, I., 2953
Martinac, B., 2889
Mashl, R. J., 2862
Mathis, P., 3226
Matsuno, M., 3217
Mealy, T. R., 3273
Mendelsohn, R., 3273
Mendieta, J., 2876
Midson, C., 2926
Miyata, H., 2973
Monbouquette, H. G., 3264
Mora, M-P., 3015
Morán, F., 2760
Munro, A. W., 3241

Nag, K., 2983
Netoff, T. I., 2776
Nielsen, K., 3031

Ollivon, M., 3198
Otto, C., 3250
Overman, S. A., 3217

Paige, M. F., 3211
Pantos, E., 2760
Perez-Gil, J., 2983
Piroddi, N., 3120
Plückthun, A., 3256
Poggesi, C., 3120
Polm, M., 3173
Pumir, A., 2850

Qian, M., 3182

Rahuel-Clermont, S., 3165
Rainey, J. K., 3211
Rao, S. N., 3131
Raynaud, C., 3015
Regnier, M., 3044, 3059
Richmond, J. E., 2945
Roberts, W. M., 2963
Rolland, A., 2802
Rols, M-P., 3015
Romey, G., 2850
Roux, B., 2744
Rouzina, I., 3152
Ruano, M. L. F., 2983
Ruben, P. C., 2945
Ruff, R. L., 2745

Sabido-David, C., 3083, 3093
Schagina, L. V., 2918
Schenk, W. A., 3031
Schiff, S. J., 2776
Seaton, B. A., 3273
Segers-Nolten, G. M. J., 3250
Semenza, G., 3256
Shi, M., 2802
Sijtsema, N. M., 3250
Silverman, D. N., 3182
Smith, L. C., 2802
Smith, W. E., 3241
So, P., 2776
Sogo, J., 2815
Song, J., 2926
Sparrow, J. T., 2802
Spring, K. R., 3302
Stasiak, A., 2815
Stehle, R., 3120
Stewart, J., 2983
Strambini, G. B., 3165
Sukhorukov, V. L., 3031

Takemoto, J. Y., 2918
Takeuchi, H., 3217
Takizawa, T., 3010
Tao, T., 3111
Tauler, R., 2876
Teeter, J. H., 2918
Teissié, J., 3015
Tesi, C., 3120
Thomas, G. J., Jr., 3217
Tieleman, D. P., 2786
Tomlinson, E., 2802
Travers, F., 3120
Trentham, D. R., 3083
Tripathi, S., 2912
Tsai, M. A., 3282
Tu, C., 3182

van der Werf, K. O., 2840
van Holde, K., 2823, 2830
van Hulst, N. F., 2840
van Noort, S. J. T., 2840
van Zanten, J. H., 3264
Venturoli, G., 3226
Verhoeven, A. J., 3250
Vinckier, A., 3256

Wade, R. C., 2906
Waugh, R. E., 3282
Webb, M. R., 3120
Williams, J. C., 3226
Worthman, L. A. D., 2983
Wu, F., 3273
Wu, J-L., 3111
Wu, L-G., 3003
Wyman, C., 2840

Xia, P., 3302
Xu, S., 3072

Yu, L. C., 3072

Zaugg, F., 3256
Ziegler, U., 3256
Zimmermann, U., 3031
Zlatanova, J., 2823, 2830

AUTHOR INDEX

A

Abouhamad, W. N. *See* Levin, Morton-Firth, Abouhamad, Bourret, and Bray

Adams, M. and Fraden, S. Phase behavior of mixtures of rods (tobacco mosaic virus) and spheres (polyethylene oxide, bovine serum albumin), 669

Adelman, J. P. *See* Tzounopoulos, Maylie, and Adelman

Agnew, J. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula

Agrawal, R. K. *See* Frank and Agrawal

A-Hassan, E., Heinz, W. F., Antonik, M. D., D'Costa, N. P., Nageswaran, S., Schoenenberger, C.-A., and Hoh, J. H. Relative microelastic mapping of living cells by atomic force microscopy, 1564

Ahern, G. P. and Laver, D. R. ATP inhibition and rectification of a Ca^{2+}-activated anion channel in sarcoplasmic reticulum of skeletal muscle, 2335

Ahsan, A., Rudnick, J., and Bruinsma, R. Elasticity theory of the B-DNA to S-DNA transition, 132

Aizawa, S.-I. *See* Koroyasu, Yamazato, Hirano, and Aizawa

Akashi, K.-i., Miyata, H., Itoh, H., and Kinosita, K., Jr. Formation of giant liposomes promoted by divalent cations: critical role of electrostatic repulsion, 2973

Åkerman, B. Effects of supercoiling in electrophoretic trapping of circular DNA in polyacrylamide gels, 3140

Alford, D. *See* Shangguan, Siegel, Lear, Axelsen, Alford, and Bentz

Ali, S., Smaby, J. M., Momsen, M. M., Brockman, H. L., and Brown, R. E. Acyl chain-length asymmetry alters the interfacial elastic interactions of phosphatidylcholines, 338

Alila, H. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith

Alkon, D. L. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka

Allemand, J.-F. *See* Strick, Allemand, Bensimon, and Croquette

Allen, J. *See* Venturoli, Drepper, Williams, Allen, Lin, and Mathis

Allersma, M. W., Gittes, F., deCastro, M. J., Stewart, R. J., and Schmidt, C. F. Two-dimensional tracking of ncd motility by back focal plane interferometry, 1074

Ambler, C. A. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto

Andersen, C. *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann

Andersen, O. S. *See* Goulian, Mesquita, Fygenson, Nielsen, Andersen, and Libchaber

——— *See* Nielsen, Goulian, and Andersen

Andreu, J. M. *See* Chacón, Morán, Díaz, Pantos, and Andreu

Angelini, N., Corrias, B., Fissi, A., Pieroni, O., and Lenci, F. Photochromic polypeptides as synthetic models of biological photoreceptors: a spectroscopic study, 2601

Anikin, A. *See* Binder, Gutberlet, Anikin, and Klose

Anson, B. D. and Roberts, W. M. A novel voltage clamp technique for mapping ionic currents from cultured skeletal myotubes, 2963

Antonik, M. D. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh

Antz, C. *See* Oliver, Hahn, Antz, Ruppersberg, and Fakler

Apell, H.-J. *See* Sokolov, Apell, Corrie, and Trentham

Arai, S. *See* Hirai, Iwase, Arai, Takizawa, and Hayashi

Araiso, T. *See* Hayakawa, Naganuma, Mukasa, Shimozawa, and Araiso

Argent, B. E. *See* Sohma, Harris, Argent, and Gray

Asai, H. *See* Moriyama, Hiyama, and Asai

Asbury, C. L. and van den Engh, G. Trapping of DNA in non-uniform oscillating electric fields, 1024

Ataka, M. *See* Urabe, Sugawara, Ataka, and Rupprecht

Atkinson, G. H. *See* Ujj, Jäger, and Atkinson

Auger, M. *See* Picard, Paquet, Dufourc, and Auger

Axelsen, P. H. *See* Shangguan, Siegel, Lear, Axelsen, Alford, and Bentz

B

Balavoine, F. *See* Bischler, Balavoine, Milkereit, Tschochner, Mioskowski, and Schultz

Bamberg, E. *See* Nagel, Kelety, Möckel, Büldt, and Bamberg

Barenholz, Y. *See* Tirosh, Barenholz, Katzhendler, and Priev

Barman, T., Brune, M., Lionne, C., Piroddi, N., Poggesi, C., Stehle, R., Tesi, C., Travers, F., and Webb, M. R. ATPase and shortening rates in frog fast skeletal myofibrils by time-resolved measurements of protein-bound and free P_i, 3120

Barranger-Mathys, M. *See* Jayasinghe, Barranger-Mathys, Ellena, Franklin, and Cafiso

Barry, B. A. *See* Kim and Barry

Barry, P. H. Derivation of unstirred-layer transport number equations from the Nernst-Planck flux equations, 2903

Bar-Ziv, R. *See* Meller, Bar-Ziv, Tlusty, Moses, Stavans, and Safran

Barzykin, A. V. *See* Price, Barzykin, Hayamizu, and Tachiya

Baskakov, I. and Bolen, D. W. Time-dependent effects of trimethylamine-*N*-oxide/urea on lactate dehydrogenase activity: an unexplored dimension of the adaptation paradigm, 2658

———, **Wang, A., and Bolen, D. W.** Trimethyamine-*N*-oxide counteracts urea effects on rabbit muscle lactate dehydrogenase function: a test of the counteraction hypothesis, 2666

Baumeister, W. *See* Grimm, Singh, Rachel, Typke, Zillig, and Baumeister

Bäumler, H. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler

Bayerl, T. M. *See* Gliss, Clausen-Schaumann, Günther, Odenbach, Randl, and Bayerl

Bean, J. C. *See* Edwards, Blasie, and Bean

Bechinger, B., Zasloff, M., and Opella, S. J. Structure and dynamics of the antibiotic peptide PGLa in membranes by solution and solid-state nuclear magnetic resonance spectroscopy, 981

Becker, F. F. *See* Wang, Vykoukal, Becker, and Gascoyne

Becucci, L. *See* Moncelli, Becucci, Buoninsegni, and Guidelli

Beechem, J. M. Expanding time scales usher in a new era for kinetic studies, 2141

Bensimon, D. *See* Strick, Allemand, Bensimon, and Croquette

Bentle, K. A. *See* Koster, Bentle, Nichols, and Ho

Bentz, J. *See* Shangguan, Siegel, Lear, Axelsen, Alford, and Bentz

Benz, R. *See* Cseh and Benz

——— *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann

Beravs, K. *See* Miklavčič, Beravs, Šemrov, Čemažar, Demšar, and Serša

Berendsen, H. J. C. *See* Tieleman and Berendsen

Berge, B. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge

Berger, O. *See* Marrink, Berger, Tieleman, and Jähnig

Berman, J. *See* Schnell, Berman, and Bloomfield

Berry, G. *See* Gordon, Berry, Liang, Levine, and Herman

Berteloot, A. *See* Falk, Guay, Chenu, Patil, and Berteloot

Berthault, P. *See* Brocca, Berthault, and Sonnino

Bertram, R. and Pernarowski, M. Glucose diffusion in pancreatic islets of Langerhans, 1722

Betz, W. J. *See* Wu and Betz
Beugin, S., Edwards, K., Karlsson, G., Ollivon, M., and Lesieur, S. New sterically stabilized vesicles based on nonionic surfactant, cholesterol, and poly(ethylene glycol)-cholesterol conjugates, 3198
Bezrukov, S. M. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
——— *See* Rostovtseva and Bezrukov
Bhyravbhatla, B., Watowich, S. J., and Caspar, D. L. D. Refined atomic model of the four-layer aggregate of the tobacco mosaic virus coat protein at 2.4-Å resolution, 604
Binder, H., Gutberlet, T., Anikin, A., and Klose, G. Hydration of the dienic lipid dioctadecadienoylphosphatidylcholine in the lamellar phase-an infrared linear dichroism and x-ray study on headgroup orientation, water ordering, and bilayer dimensions, 1908
Bischler, N., Balavoine, F., Milkereit, P., Tschochner, H., Mioskowski, C., and Schultz, P. Specific interaction and two-dimensional crystallization of histidine tagged yeast RNA polymerase I on nickel-chelating lipids, 1522
Blachly-Dyson, E. *See* Song, Midson, Blachly-Dyson, Forte, and Colombini
Blankenship, R. E. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Blasie, J. K. *See* Edwards, Blasie, and Bean
Blatter, L. A. *See* Hüser, Rechenmacher, and Blatter
Block, B. M., Stacey, W. C., and Jones, S. W. Surface charge and lanthanum block of calcium current in bullfrog sympathetic neurons, 2278
Bloomfield, V. A. *See* Rouzina and Bloomfield
——— *See* Schnell, Berman, and Bloomfield
Boireau, W. *See* Marchal, Boireau, Laval, Moiroux, and Bourdillon
Bolen, D. W. *See* Baskakov and Bolen
——— *See* Baskakov, Wang, and Bolen
Bordas, J. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
Bordi, F., Cametti, C., and Naglieri, A. Ionic transport in lipid bilayer membranes, 1358
Bourdillon, C. *See* Marchal, Boireau, Laval, Moiroux, and Bourdillon
Bourret, R. B. *See* Levin, Morton-Firth, Abouhamad, Bourret, and Bray
Boxer, L. A. *See* Kindzelskii, Zhou, Haugland, Boxer, and Petty
Brader, M. L. *See* Yip, Brader, DeFelippis, and Ward
Brand, J. G. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Brandmeier, B. *See* Sabido-David, Brandmeier, Craik, Corrie, Trentham, and Irving
Brandt, P. W., Colomo, F., Piroddi, N., Poggesi, C., and Tesi, C. Force regulation by Ca^{2+} in skinned single cardiac myocytes of frog, 1994
Brandt, R. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Branlant, G. *See* Strambini, Gabellieri, Gonnelli, Rahuel-Clermont, and Branlant
Bras, W., Diakun, G. P., Díaz, J. F., Maret, G., Kramer, H., Bordas, J., and Medrano, F. J. The susceptibility of pure tubulin to high magnetic fields: a magnetic birefringence and x-ray fiber diffraction study, 1509
Bray, D. *See* Levin, Morton-Firth, Abouhamad, Bourret, and Bray
Brenner, M. P., Levitov, L. S., and Budrene, E. O. Physical mechanisms for chemotactic pattern formation by bacteria, 1677
Brettel, K. *See* Polm and Brettel
Bretthorst, G. L. *See* d'Avignon, Bretthorst, Holtzer, and Holtzer
Brink, J. *See* Frey, Brink, Schief, Chiu, and Vogel
Brisson, A. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge
Brocca, P., Berthault, P., and Sonnino, S. Conformation of the oligosaccharide chain of G_{M1} ganglioside in a carbohydrate-enriched surface, 309
Brochon, J.-C. *See* Tauc, Mateo, and Brochon
Brockman, H. L. *See* Ali, Smaby, Momsen, Brockman, and Brown
Brooks, C. L., III *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Brown, R. E. *See* Ali, Smaby, Momsen, Brockman, and Brown
Bruinsma, R. F. *See* Ahsan, Rudnick, and Bruinsma
——— *See* Jülicher and Bruinsma
——— *See* Mashl and Bruinsma
Brune, M. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
Bubanko, S. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri
Bucci, E., Gryczynski, Z., Razynska, A., and Kwansa, H. Entropy-driven intermediate steps of oxygenation may regulate the allosteric behavior of hemoglobin, 2638
Buck, D. R. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Budde, A. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Budde, P. *See* Neumann, Toensing, Kakorin, Budde, and Frey
Budrene, E. O. *See* Brenner, Levitov, and Budrene
Büldt, G. *See* Nagel, Kelety, Möckel, Büldt, and Bamberg
Bull, R. *See* Marengo, Hidalgo, and Bull
Bullitt, E. and Makowski, L. Bacterial adhesion pili are heterologous assemblies of similar subunits, 623
Bungay, P. M. *See* Xia, Bungay, Gibson, Kovbasnjuk, and Spring
Buoninsegni, F. T. *See* Moncelli, Becucci, Buoninsegni, and Guidelli
Bustamante, C. *See* Leuba, Bustamante, van Holde, and Zlatanova
——— *See* Leuba, Bustamante, Zlatanova, and van Holde

C

Caffrey, M. *See* Zhang, Itri, and Caffrey
Cafiso, D. S. *See* Jayasinghe, Barranger-Mathys, Ellena, Franklin, and Cafiso
Cametti, C. *See* Bordi, Cametti, and Naglieri
Cantù, L., Corti, M., Del Favero, E., Dubois, M., and Zemb, T. Consistency of microstructural modeling of micelles: letter concerning "Thermotropic Behavior and Stability of Monosialoganglioside Micelles in Aqueous Solution.", 1600
Cao, Y. *See* Chatton, Cao, and Stucki
Capel, M. S. *See* Quantock, Kinoshita, Capel, and Schanzlin
Carlier, M.-F. *See* Guidi, Carlier, and Goldbeter
Carrondo, M. A. *See* Soares, Martel, Mendes, and Carrondo
Carter, E. P., Ölveczky, B. P., Matthay, M. A., and Verkman, A. S. High microvascular endothelial water permeability in mouse lung measured by a pleural surface fluorescence method, 2121
Casals, C. *See* Nag, Perez-Gil, Ruano, Worthman, Stewart, Casals, and Keough
——— *See* Ruano, Nag, Worthman, Casals, Pérez-Gil, and Keough
Caspar, D. L. D. *See* Bhyravbhatla, Watowich, and Caspar
——— *See* Díaz-Avalos and Caspar
——— *See* Yu and Caspar
Čemažar, M. *See* Miklavčič, Beravs, Šemrov, Čemažar, Demšar, and Serša
Chacón, P., Morán, F., Díaz, J. F., Pantos, E., and Andreu, J. M. Low-resolution structures of proteins in solution retrieved from x-ray scattering with a genetic algorithm, 2760
Chalovich, J. M. *See* Frisbie, Xu, Chalovich, and Yu

Chapman, G. B. and Cokelet, G. R. Flow resistance and drag forces due to multiple adherent leukocytes in post-capillary vessels, 3292
Chapman, M. S. Watching one's P's and Q's: promiscuity, plasticity, and quasiequivalence in a $T = 1$ virus, 639
Chase, P. B., Denkinger, T. M., and Kushmerick, M. J. Effect of viscosity on mechanics of single, skinned fibers from rabbit psoas muscle, 1428
——— *See* Daniel, Trimble, and Chase
——— *See* Regnier, Martyn, and Chase
Chatton, J.-Y., Cao, Y., and Stucki, J. W. Perturbation of myo-inositol-1,4,5-trisphosphate levels during agonist-induced Ca^{2+} oscillations, 523
Chauwin, J.-F., Oster, G., and Glick, B. S. Strong precursor-pore interactions constrain models for mitochondrial protein import, 1732
Chen, D. P. *See* Nonner, Chen, and Eisenberg
Chen, T.-Y. *See* Finn, Krautwurst, Schroeder, Chen, Reed, and Yau
Chen, Z. and Rand, R. P. Comparative study of the effects of several *n*-alkanes on phospholipid hexagonal phases, 944
Chenu, C. *See* Falk, Guay, Chenu, Patil, and Berteloot
Cherny, D. I., Fourcade, A., Svinarchuk, F., Nielsen, P. E., Malvy, C., and Delain, E. Analysis of various sequence-specific triplexes by electron and atomic force microscopies, 1015
Chiamvimonvat, N. *See* Ranjan, Chiamvimonvat, Thakor, Tomaselli, and Marban
Chiu, W. *See* Frey, Brink, Schief, Chiu, and Vogel
——— *See* McGough, Chiu, and Way
——— *See* Thuman-Commike, Greene, Malinski, King, and Chiu
——— *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott
Chizmadzhev, Y. A., Indenbom, A. V., Kuzmin, P. I., Galichenko, S. V., Weaver, J. C., and Potts, R. O. Electrical properties of skin at moderate voltages: contribution of appendageal macropores, 843
Choi, A. D. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Choi, K. I. *See* Francis, Choi, Horenstein, and Papke
Chow, R. H. *See* Haller, Heinemann, Chow, Heidelberger, and Neher
Chu, Z. T. *See* Parson, Chu, and Warshel
Chuang, L. *See* Eligula, Chuang, Phillips, Motoki, Seguro, and Muhlrad
Chung, S.-H. *See* Kuyucak, Hoyles, and Chung
——— *See* Li, Hoyles, Kuyucak, and Chung
Chynwat, V. *See* Laible, Chynwat, Thurnauer, Schiffer, Hanson, and Frank
Ciuchi, F. *See* Mariani, Ciuchi, and Saturni
Cladera, J. and O'Shea, P. Intramembrane molecular dipoles affect the membrane insertion and folding of a model amphiphilic peptide, 2434
Clausen-Schaumann, H. *See* Gliss, Clausen-Schaumann, Günther, Odenbach, Randl, and Bayerl
——— *See* Grandbois, Clausen-Schaumann, and Gaub
Clay, J. R. *See* Paquette, Clay, Ogbaghebriel, and Shrier
Cohen, C. Good times with Don Caspar, 532
Cokelet, G. R. *See* Chapman and Cokelet
Coleman, B. D. *See* Swigon, Coleman, and Tobias
Collings, P. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula
Collins, F. S. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Colombini, M. *See* Song, Midson, Blachly-Dyson, Forte, and Colombini
Colomo, F. *See* Brandt, Colomo, Piroddi, Poggesi, and Tesi
Colson, A.-O., Perlman, J. H., Smolyar, A., Gershengorn, M. C., and Osman, R. Static and dynamic roles of extracellular loops in G-protein-coupled receptors: a mechanism for sequential binding of thyrotropin-releasing hormone to its receptor, 1087
Comley, R. *See* DeLuca, Comley, and Davies
Connor, J. T. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Cooke, R. *See* Getz, Cooke, and Selvin
——— *See* Highsmith, Duignan, Franks-Skiba, Polosukhina, and Cooke
Cooke, R. *See* Pate, Franks-Skiba, and Cooke
Corrias, B. *See* Angelini, Corrias, Fissi, Pieroni, and Lenci
Corrie, J. E. T. *See* Hopkins, Sabido-David, Corrie, Irving, and Goldman
——— *See* Sabido-David, Brandmeier, Craik, Corrie, Trentham, and Irving
——— *See* Sokolov, Apell, Corrie, and Trentham
Corti, M. *See* Cantù, Corti, Del Favero, Dubois, and Zemb
Craik, J. S. *See* Sabido-David, Brandmeier, Craik, Corrie, Trentham, and Irving
Croquette, V. *See* Strick, Allemand, Bensimon, and Croquette
Cseh, R. and Benz, R. The adsorption of phloretin to lipid monolayers and bilayers cannot be explained by Langmuir adsorption isotherms alone, 1399

D

Daniel, T. L., Trimble, A. C., and Chase, P. B. Compliant realignment of binding sites in muscle: transient behavior and mechanical tuning, 1611
Davidson, R. M. *See* Zhang, Davidson, Wei, and Loew
Davies, P. L. *See* DeLuca, Comley, and Davies
d'Avignon, D. A., Bretthorst, G. L., Holtzer, M. E., and Holtzer, A. Site-specific thermodynamics and kinetics of a coiled-coil transition by spin inversion transfer NMR, 3190
Dawson, D. C. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
D'Costa, N. P. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh
Deamer, D. W. *See* Paula, Volkov, and Deamer
deCastro, M. J. *See* Allersma, Gittes, deCastro, Stewart, and Schmidt
de Curtis, M. *See* Magistretti, Mantegazza, de Curtis, and Wanke
DeFelippis, M. R. *See* Yip, Brader, DeFelippis, and Ward
DeGrip, W. J. *See* Rath, DeGrip, and Rothschild
de Grooth, B. G. *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve
Dekker, J. P. *See* Pålsson, Flemming, Gobets, van Grondelle, Dekker, and Schlodder
Delain, E. *See* Cherny, Fourcade, Svinarchuk, Nielsen, Malvy, and Delain
Del Favero, E. *See* Cantù, Corti, Del Favero, Dubois, and Zemb
Delteil, C. *See* Golzio, Mora, Raynaud, Delteil, Teissié, and Rols
DeLuca, C. I., Comley, R., and Davies, P. L. Antifreeze proteins bind independently to ice, 1502
Demeler, B. and Saber, H. Determination of molecular parameters by fitting sedimentation data to finite-element solutions of the Lamm equation, 444
Dempsey, C. E. *See* Sessions, Gibbs, and Dempsey
Demšar, F. *See* Miklavčič, Beravs, Šemrov, Čemažar, Demšar, and Serša
Dencher, N. A. Bacteriorhodopsin: a spectroscopic intermediate with two conformations and three relay events is voltage sensitive, 1

Denisov, G., Wanaski, S., Luan, P., Glaser, M., and McLaughlin, S. Binding of basic peptides to membranes produces lateral domains enriched in the acidic lipids phosphatidylserine and phosphatidylinositol 4,5-bisphosphate: an electrostatic model and experimental results, 731
Denkinger, T. M. *See* Chase, Denkinger, and Kushmerick
Denkov, N. D., Yoshimura, H., Kouyama, T., Walz, J., and Nagayama, K. Electron cryomicroscopy of bacteriorhodopsin vesicles: mechanism of vesicle formation, 1409
de Paula, J. C. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula
Derreumaux, P. and Schlick, T. The loop opening/closing motion of the enzyme triosephosphate isomerase, 72
de Vocht, M. L., Scholtmeijer, K., van der Vegte, E. W., de Vries, O. M. H., Sonveaux, N., Wösten, H. A. B., Ruysschaert, J.-M., Hadziioannou, G., Wessels, J. G. H., and Robillard, G. T. Structural characterization of the hydrophobin SC3 as a monomer and after self-assembly at hydrophobic/hydrophilic interfaces, 2059
de Vries, O. M. H. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard
Diakun, G. P. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
Díaz, J. F. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
——— *See* Chacón, Morán, Díaz, Pantos, and Andreu
Díaz-Avalos, R. and Caspar, D. L. D. Structure of the stacked disc aggregate of tobacco mosaic virus protein, 595
Diaz-Cruz, M. S. *See* Mendieta, Diaz-Cruz, Esteban, and Tauler
Diffee, G. M. *See* Patel, Diffee, Huang, and Moss
Ding, J. P., Li, Z. W., and Lingle, C. J. Inactivating BK channels in rat chromaffin cells may arise from heteromultimeric assembly of distinct inactivation-competent and noninactivating subunits, 268
Dobbie, I. *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi
Doherty, P. *See* Simson, Yang, Moore, Doherty, Walsh, and Jacobson
Dohse, B. *See* Ortega, Dohse, Oesterhelt, and Mathis
Donath, E. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Donoso, P. *See* Kamp, Donoso, and Hidalgo
Drepper, F. *See* Venturoli, Drepper, Williams, Allen, Lin, and Mathis
Drumm, M. L. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Dubochet, J. *See* Laurie, Katritch, Sogo, Koller, Dubochet, and Stasiak
Dubois, M. *See* Cantù, Corti, Del Favero, Dubois, and Zemb
Dufourc, E. J. *See* Picard, Paquet, Dufourc, and Auger
Duguid, J. G., Li, C., Shi, M., Logan, M. J., Alila, H., Rolland, A., Tomlinson, E., Sparrow, J. T., and Smith, L. C. A physicochemical approach for predicting the effectiveness of peptide-based gene delivery systems for use in plasmid-based gene therapy, 2802
Duignan, K. *See* Highsmith, Duignan, Franks-Skiba, Polosukhina, and Cooke
Dura, J. A. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Dusenbery, D. B. Spatial sensing of stimulus gradients can be superior to temporal sensing for free-swimming bacteria, 2272

E

Earnhardt, J. N. *See* Tu, Qian, Earnhardt, Laipis, and Silverman
Edidin, M. *See* Hwang, Gheber, Margolis, and Edidin
Edmiston, P. L. and Saavedra, S. S. Molecular orientation distributions in protein films. III. Yeast cytochrome *c* immobilized on pyridyl disulfide-capped phospholipid bilayers, 999
Edwards, A. M., Blasie, J. K., and Bean, J. C. Vectorially oriented monolayers of the cytochrome *c*/cytochrome oxidase bimolecular complex, 1346
Edwards, K. *See* Beugin, Edwards, Karlsson, Ollivon, and Lesieur
Edwards, R. J. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Eisenberg, B. *See* Nonner, Chen, and Eisenberg
Eker, A. P. M. *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve
Elbaum, D. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka
Elber, R. *See* Meller and Elber
Eligula, L., Chuang, L., Phillips, M. L., Motoki, M., Seguro, K., and Muhlrad, A. Transglutaminase-induced cross-linking between subdomain 2 of G-actin and the 636–642 lysine-rich loop of myosin subfragment 1, 953
Ellena, J. F. *See* Jayasinghe, Barranger-Mathys, Ellena, Franklin, and Cafiso
Elston, T. *See* Wang, Elston, Mogilner, and Oster
Esteban, M. *See* Mendieta, Diaz-Cruz, Esteban, and Tauler

F

Fa, M. *See* Karolin, Fa, Wilczynska, Ny, and Johansson
Faix, J. *See* Simson, Wallraff, Faix, Niewöhner, Gerisch, and Sackmann
Fakler, B. *See* Oliver, Hahn, Antz, Ruppersberg, and Fakler
Falk, S., Guay, A., Chenu, C., Patil, S. D., and Berteloot, A. Reduction of an eight-state mechanism of cotransport to a six-state model using a new computer program, 816
Fan, Z. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January
Farinas, J. *See* Kneen, Farinas, Li, and Verkman
Fatt, I., Giasson, C. J., and Mueller, T. D. Non-steady-state diffusion in a multilayered tissue initiated by manipulation of chemical activity at the boundaries, 475
Featherstone, D. E. *See* Richmond, Featherstone, Hartmann, and Ruben
Feigin, A. M. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Fernández, J. M. *See* Solsona, Innocenti, and Fernández
Fetisova, Z. G. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Fink, R. H. A. *See* Uttenweiler, Weber, and Fink
Finn, J. T., Krautwurst, D., Schroeder, J. E., Chen, T.-Y., Reed, R. R., and Yau, K.-W. Functional co-assembly among subunits of cyclic-nucleotide-activated, nonselective cation channels, and across species from nematode to human, 1333
Fissi, A. *See* Angelini, Corrias, Fissi, Pieroni, and Lenci
Flach, C. R. *See* Wu, Gericke, Flach, Mealy, Seaton, and Mendelsohn
Flemming, C. *See* Pålsson, Flemming, Gobets, van Grondelle, Dekker, and Schlodder
Forgacs, G., Foty, R. A., Shafrir, Y., and Steinberg, M. S. Viscoelastic properties of living embryonic tissues: a quantitative study, 2227
Forte, M. *See* Song, Midson, Blachly-Dyson, Forte, and Colombini
Foty, R. A. *See* Forgacs, Foty, Shafrir, and Steinberg
Fourcade, A. *See* Cherny, Fourcade, Svinarchuk, Nielsen, Malvy, and Delain
Fraden, S. *See* Adams and Fraden
Francis, J. *See* So, Francis, Netoff, Gluckman, and Schiff

Francis, M. M., Choi, K. I., Horenstein, B. A., and Papke, R. L. Sensitivity to voltage-independent inhibition determined by pore-lining region of the acetylcholine receptor, 2306
Frank, H. A. *See* Laible, Chynwat, Thurnauer, Schiffer, Hanson, and Frank
Frank, J. and Agrawal, R. K. The movement of tRNA through the ribosome, 589
Franklin, C. *See* Jayasinghe, Barranger-Mathys, Ellena, Franklin, and Cafiso
Franks-Skiba, K. *See* Highsmith, Duignan, Franks-Skiba, Polosukhina, and Cooke
——— *See* Pate, Franks-Skiba, and Cooke
Freed, J. H. *See* Ge and Freed
Frey, J. *See* Neumann, Toensing, Kakorin, Budde, and Frey
Frey, W., Brink, J., Schief, W. R., Jr., Chiu, W., and Vogel, V. Electron crystallographic analysis of two-dimensional streptavidin crystals coordinated to metal-chelated lipid monolayers, 2674
Frisbie, S. M., Xu, S., Chalovich, J. M., and Yu, L. C. Characterizations of cross-bridges in the presence of saturating concentrations of MgAMP-PNP in rabbit permeabilized psoas muscle, 3072
Frisken, B. J. *See* Hunter and Frisken
Fu, J. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Fygenson, D. K. *See* Goulian, Mesquita, Fygenson, Nielsen, Andersen, and Libchaber

G

Gabellieri, E. *See* Strambini, Gabellieri, Gonnelli, Rahuel-Clermont, and Branlant
Galichenko, S. V. *See* Chizmadzhev, Indenbom, Kuzmin, Galichenko, Weaver, and Potts
Gao, J., Yin, D. H., Yao, Y., Sun, H., Qin, Z., Schöneich, C., Williams, T. D., and Squier, T. C. Loss of conformational stability in calmodulin upon methionine oxidation, 1115
Gao, X. and Wong, T. C. Studies of the binding and structure of adrenocorticotropin peptides in membrane mimics by NMR spectroscopy and pulsed-field gradient diffusion, 1871
Gascoyne, P. R. C. *See* Wang, Vykoukal, Becker, and Gascoyne
Gaub, H. *See* Grandbois, Clausen-Schaumann, and Gaub
Ge, M. and Freed, J. H. Polarity profiles in oriented and dispersed phosphatidylcholine bilayers are different: an electron spin resonance study, 910
Georgieva, R., Neu, B., Shilov, V. M., Knippel, E., Budde, A., Latza, R., Donath, E., Kiesewetter, H., and Bäumler, H. Low frequency electrorotation of fixed red blood cells, 2114
Gergely, J. *See* Luo, Wu, Gergely, and Tao
Gericke, A. *See* Wu, Gericke, Flach, Mealy, Seaton, and Mendelsohn
Gerisch, G. *See* Simson, Wallraff, Faix, Niewöhner, Gerisch, and Sackmann
Gershengorn, M. C. *See* Colson, Perlman, Smolyar, Gershengorn, and Osman
Gervasoni, P. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza
Getz, E. B., Cooke, R., and Selvin, P. R. Luminescence resonance energy transfer measurements in myosin, 2451
Gheber, L. A. *See* Hwang, Gheber, Margolis, and Edidin
Giasson, C. J. *See* Fatt, Giasson, and Mueller
Gibbs, E. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula
Gibbs, N. *See* Sessions, Gibbs, and Dempsey
Gibson, C. C. *See* Xia, Bungay, Gibson, Kovbasnjuk, and Spring
Giesing, H. A. *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Gittes, F. *See* Allersma, Gittes, deCastro, Stewart, and Schmidt
Glaser, M. *See* Denisov, Wanaski, Luan, Glaser, and McLaughlin
Glick, B. S. *See* Chauwin, Oster, and Glick
Gliss, C., Clausen-Schaumann, H., Günther, R., Odenbach, S., Randl, O., and Bayerl, T. M. Direct detection of domains in phospholipid bilayers by grazing incidence diffraction of neutrons and atomic force microscopy, 2443
Gluckman, B. J. *See* So, Francis, Netoff, Gluckman, and Schiff
Gobets, B. *See* Pålsson, Flemming, Gobets, van Grondelle, Dekker, and Schlodder
Goel, A. *See* Horikawa, Goel, Somlyo, and Somlyo
Goh, M. C. *See* Paige, Rainey, and Goh
Golbeck, J. H. *See* Vassiliev, Jung, Yang, and Golbeck
Goldbeter, A. *See* Guidi, Carlier, and Goldbeter
Goldman, Y. E. *See* Hopkins, Sabido-David, Corrie, Irving, and Goldman
Goldstein, R. E. *See* Wiggins, Riveline, Ott, and Goldstein
Golzio, M., Mora, M.-P., Raynaud, C., Delteil, C., Teissié, J., and Rols, M.-P. Control by osmotic pressure of voltage-induced permeabilization and gene transfer in mammalian cells, 3015
Gong, Q. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January
Gonnelli, M. *See* Strambini, Gabellieri, Gonnelli, Rahuel-Clermont, and Branlant
Goodfellow, J. M. *See* Lee and Goodfellow
Goormaghtigh, E. *See* Sturgis, Robert, and Goormaghtigh
Gordon, G. W., Berry, G., Liang, X.-H., Levine, B., and Herman, B. Quantitative fluorescence resonance energy transfer measurements using fluorescence microscopy, 2702
Goulian, M., Mesquita, O. N., Fygenson, D. K., Nielsen, C., Andersen, O. S., and Libchaber, A. Gramicidin channel kinetics under tension, 328
——— *See* Nielsen, Goulian, and Andersen
Grandbois, M., Clausen-Schaumann, H., and Gaub, H. Atomic force microscope imaging of phospholipid bilayer degradation by phospholipase A_2, 2398
Grantham, J. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Gratton, E. *See* Krasnowska, Gratton, and Parasassi
Gray, M. A. *See* Sohma, Harris, Argent, and Gray
Greene, B. *See* Thuman-Commike, Greene, Malinski, King, and Chiu
Greve, J. *See* Sijtsema, Otto, Segers-Nolten, Verhoeven, and Greve
——— *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve
Grimm, R., Singh, H., Rachel, R., Typke, D., Zillig, W., and Baumeister, W. Electron tomography of ice-embedded prokaryotic cells, 1031
Groscurth, P. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza
Gryczynski, Z. *See* Bucci, Gryczynski, Razynska, and Kwansa
Gu, L., Liu, W., and Martinac, B. Electromechanical coupling model of gating the large mechanosensitive ion channel (MscL) of *Escherichia coli* by mechanical force, 2889
Guay, A. *See* Falk, Guay, Chenu, Patil, and Berteloot
Gueron, S. and Levit-Gurevich, K. Computation of the internal forces in cilia: application to ciliary motion, the effects of viscosity, and cilia interactions, 1658
Guidelli, R. *See* Moncelli, Becucci, Buoninsegni, and Guidelli
Guidi, G. M., Carlier, M.-F., and Goldbeter, A. Bistability in the isocitrate dehydrogenase reaction: an experimentally based theoretical study, 1229
Günther, R. *See* Gliss, Clausen-Schaumann, Günther, Odenbach, Randl, and Bayerl
Gutberlet, T. *See* Binder, Gutberlet, Anikin, and Klose

H

Hadziioannou, G. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard

Hahn, H. *See* Oliver, Hahn, Antz, Ruppersberg, and Fakler

Haller, M., Heinemann, C., Chow, R. H., Heidelberger, R., and Neher, E. Comparison of secretory responses as measured by membrane capacitance and by amperometry, 2100

Hanck, D. A. *See* Millonas and Hanck

Hanson, D. K. *See* Laible, Chynwat, Thurnauer, Schiffer, Hanson, and Frank

Harris, A. *See* Sohma, Harris, Argent, and Gray

Harris, R. E., Larsson, H. P., and Isacoff, E. Y. A permeant ion binding site located between two gates of the *Shaker* K^+ channel, 1808

Hartmann, H. A. *See* Richmond, Featherstone, Hartmann, and Ruben

Hartzell, H. C. *See* Machaca and Hartzell

Hasegawa, K., Yamashita, I., and Namba, K. Quasi- and nonequivalence in the structure of bacterial flagellar filament, 569

Haskell, K. *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott

Hato, M. *See* Ohnishi, Murata, and Hato

Haugland, R. P. *See* Kindzelskii, Zhou, Haugland, Boxer, and Petty

Hayakawa, E., Naganuma, M., Mukasa, K., Shimozawa, T., and Araiso, T. Change of motion and localization of cholesterol molecule during L_α-H_{II} transition, 892

Hayamizu, K. *See* Price, Barzykin, Hayamizu, and Tachiya

Hayashi, K. *See* Hirai, Iwase, Arai, Takizawa, and Hayashi

Hayes, J. M. *See* Milanovich, Reinot, Hayes, and Small

Heidelberger, R. *See* Haller, Heinemann, Chow, Heidelberger, and Neher

Heinemann, C. *See* Haller, Heinemann, Chow, Heidelberger, and Neher

Heinz, W. F. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh

Henderson, K. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto

Herman, B. *See* Gordon, Berry, Liang, Levine, and Herman

Hermann, A. *See* Weiger, Langer, and Hermann

Herzyk, P. and Hubbard, R. E. Using experimental information to produce a model of the transmembrane domain of the ion channel phospholamban, 1203

Hew, C. L. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri

Hidalgo, C. *See* Kamp, Donoso, and Hidalgo

——— *See* Marengo, Hidalgo, and Bull

Highsmith, S., Duignan, K., Franks-Skiba, K., Polosukhina, K., and Cooke, R. Reversible inactivation of myosin subfragment 1 activity by mechanical immobilization, 1465

Hild, G. *See* Nyitrai, Hild, Lakos, and Somogyi

Hinrichs, W. *See* Krafft, Hinrichs, Orth, Saenger, and Welfle

Hirai, M. Response to Cantù et al., 1604

———, **Iwase, H., Arai, S., Takizawa, T., and Hayashi, K.** Interaction of gangliosides with proteins depending on oligosaccharide chain and protein surface modification, 1380

——— **and Takizawa, T.** Intensive extrusion and occlusion of water in ganglioside micelles with thermal reversibility, 3010

Hirano, T. *See* Koroyasu, Yamazato, Hirano, and Aizawa

Hitomi, J. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno

Hiyama, S. *See* Moriyama, Hiyama, and Asai

Hæffner, F., Norin, T., and Hult, K. Molecular modeling of the enantioselectivity in lipase-catalyzed transesterification reactions, 1251

Hladky, S. B. *See* Tripathi and Hladky

Ho, K. *See* Koster, Bentle, Nichols, and Ho

Hofmann, K. P. *See* Laitko and Hofmann

Hoh, J. H. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh

Holtzer, A. *See* d'Avignon, Bretthorst, Holtzer, and Holtzer

Holtzer, M. E. *See* d'Avignon, Bretthorst, Holtzer, and Holtzer

Homsher, E. *See* Regnier and Homsher

——— *See* Regnier, Lee, and Homsher

Hon, W.-C. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri

Hopkins, S. C., Sabido-David, C., Corrie, J. E. T., Irving, M., and Goldman, Y. E. Fluorescence polarization transients from rhodamine isomers on the myosin regulatory light chain in skeletal muscle fibers, 3093

Horenstein, B. A. *See* Francis, Choi, Horenstein, and Papke

Horikawa, Y., Goel, A., Somlyo, A. P., and Somlyo, A. V. Mitochondrial calcium in relaxed and tetanized myocardium, 1579

Horowits, R. *See* Zhang, Weisberg, and Horowits

Hoshi, T. *See* Marten and Hoshi

Howlett, G. J. *See* Schuck, MacPhee, and Howlett

Hoyles, M. *See* Kuyucak, Hoyles, and Chung

——— *See* Li, Hoyles, Kuyucak, and Chung

Hristova, K. and White, S. H. Determination of the hydrocarbon core structure of fluid dioleoylphosphocholine (DOPC) bilayers by x-ray diffraction using specific bromination of the double bonds: effect of hydration, 2419

Huang, H. *See* Li, Huang, Re, Qi, and Marx

Huang, X. P. *See* Patel, Diffee, Huang, and Moss

Hubbard, R. E. *See* Herzyk and Hubbard

Hui, S. W. Low voltage electroporation of the skin, or is it iontophoresis?, 679

Hult, K. *See* Hæffner, Norin, and Hult

Hunter, D. G. and Frisken, B. J. Effect of extrusion pressure and lipid properties on the size and polydispersity of lipid vesicles, 2996

Hüser, J., Rechenmacher, C. E., and Blatter, L. A. Imaging the permeability pore transition in single mitochondria, 2129

Hwang, J. S. *See* Prosser, Hwang, and Vold

Hwang, J., Gheber, L. A., Margolis, L., and Edidin, M. Domains in cell plasma membranes investigated by near-field scanning optical microscopy, 2184

I

Ibragimova, G. T. and Wade, R. C. Importance of explicit salt ions for protein stability in molecular dynamics simulation, 2906

Ikeda, M. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka

Indenbom, A. V. *See* Chizmadzhev, Indenbom, Kuzmin, Galichenko, Weaver, and Potts

Innocenti, B. *See* Solsona, Innocenti, and Fernández

Inoue, H. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka

Inouye, H. *See* Malinchik, Inouye, Szumowski, and Kirschner

Irving, M. *See* Hopkins, Sabido-David, Corrie, Irving, and Goldman

——— *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi

——— *See* Sabido-David, Brandmeier, Craik, Corrie, Trentham, and Irving

Irving, T. C. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy

Isacoff, E. Y. *See* Harris, Larsson, and Isacoff

Itoh, H. *See* Akashi, Miyata, Itoh, and Kinosita

Itri, R. *See* Zhang, Itri, and Caffrey
Ivanova, E. *See* Malinina, Tereshko, Ivanova, Subirana, Zarytova, and Nekrasov
Iwamoto, H. Thin filament cooperativity as a major determinant of shortening velocity in skeletal muscle fibers, 1452
Iwamoto, T. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Iwase, H. *See* Hirai, Iwase, Arai, Takizawa, and Hayashi

J

Jacobson, K. A. *See* Simson, Yang, Moore, Doherty, Walsh, and Jacobson
Jafri, M. S., Rice, J. J., and Winslow, R. L. Cardiac Ca^{2+} dynamics: the roles of ryanodine receptor adaptation and sarcoplasmic reticulum load, 1149
Jäger, F. *See* Ujj, Jäger, and Atkinson
Jähnig, F. *See* Marrink, Berger, Tieleman, and Jähnig
Jakana, J. *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott
Janmey, P. A. *See* Xu, Schwarz, Käs, Stossel, Janmey, and Pollard
January, C. T. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January
——— *See* Zhou and January
Jares-Erijman, E. *See* Vereb, Jares-Erijman, Selvin, and Jovin
Jayasinghe, S., Barranger-Mathys, M., Ellena, J. F., Franklin, C., and Cafiso, D. S. Structural features that modulate the transmembrane migration of a hydrophobic peptide in lipid vesicles, 3023
Jentzen, W., Ma, J.-G., and Shelnutt, J. A. Conservation of the conformation of the porphyrin macrocycle in hemoproteins, 753
Jiang, Q. *See* Zhong, Jiang, Moore, Newns, and Klein
Johansson, L. B.- A. *See* Karolin, Fa, Wilczynska, Ny, and Johansson
Johnson, J. E. *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Jones, S. W. *See* Block, Stacey, and Jones
——— *See* Klemic, Shieh, Kirsch, and Jones
Jovin, T. M. *See* Vereb, Jares-Erijman, Selvin, and Jovin
Jülicher, F. and Bruinsma, R. Motion of RNA polymerase along DNA: a stochastic model, 1169
Jung, Y.-S. *See* Vassiliev, Jung, Yang, and Golbeck

K

Kakorin, S. *See* Neumann, Toensing, Kakorin, Budde, and Frey
Kamp, F., Donoso, P., and Hidalgo, C. Changes in luminal pH caused by calcium release in sarcoplasmic reticulum vesicles, 290
Kannt, A., Lancaster, C. R. D., and Michel, H. The coupling of electron transfer and proton translocation: electrostatic calculations on *Paracoccus denitrificans* cytochrome *c* oxidase, 708
Karlsson, G. *See* Beugin, Edwards, Karlsson, Ollivon, and Lesieur
Karolin, J., Fa, M., Wilczynska, M., Ny, T., and Johansson, L. B.- A. Donor-donor energy migration for determining intramolecular distances in proteins: I. Application of a model on the latent plasminogen activator inhibitor-1 (PAI-1), 11
Käs, J. A. *See* Xu, Schwarz, Käs, Stossel, Janmey, and Pollard
Katritch, V. *See* Laurie, Katritch, Sogo, Koller, Dubochet, and Stasiak
Katzhendler, J. *See* Tirosh, Barenholz, Katzhendler, and Priev
Kaulin, Y. A., Schagina, L. V., Bezrukov, S. M., Malev, V. V., Feigin, A. M., Takemoto, J. Y., Teeter, J. H., and Brand, J. G. Cluster organization of ion channels formed by the antibiotic syringomycin E in bilayer lipid membranes, 2918
Kelety, B. *See* Nagel, Kelety, Möckel, Büldt, and Bamberg
Keller, D. Making movies of molecular motions, 2743
Keller, T. H., Rayment, T., and Klenerman, D. Optical chemical imaging of tobacco mosaic virus in solution at 60-nm resolution, 2076
Keng, P. C. *See* Tsai, Waugh, and Keng
Kentler, C. J. *See* Schumaker and Kentler
Keough, K. M. W. *See* Nag, Perez-Gil, Ruano, Worthman, Stewart, Casals, and Keough
Keough, K. W. *See* Ruano, Nag, Worthman, Casals, Pérez-Gil, and Keough
Kermode, H., Williams, A. J., and Sitsapesan, R. The interactions of ATP, ADP, and inorganic phosphate with the sheep cardiac ryanodine receptor, 1296
Kiesewetter, H. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Kim, S. and Barry, B. A. The protein environment surrounding tyrosyl radicals $D^{\cdot}$ and $Z^{\cdot}$ in photosystem II: a difference Fourier-transform infrared spectroscopic study, 2588
Kindzelskii, A. L., Zhou, M.-J., Haugland, R. P., Boxer, L. A., and Petty, H. R. Oscillatory pericellular proteolysis and oxidant deposition during neutrophil locomotion, 90
King, J. *See* Thuman-Commike, Greene, Malinski, King, and Chiu
Kinoshita, S. *See* Quantock, Kinoshita, Capel, and Schanzlin
Kinosita, K., Jr. *See* Akashi, Miyata, Itoh, and Kinosita
Kirsch, G. E. *See* Klemic, Shieh, Kirsch, and Jones
Kirschner, D. A. *See* Malinchik, Inouye, Szumowski, and Kirschner
Kiss, L. and Korn, S. J. Modulation of C-type inactivation by K^+ at the potassium channel selectivity filter, 1840
Klapper, I. and Qian, H. Remarks on discrete and continuous large-scale models of DNA dynamics, 2504
Klein, M. L. *See* Zhong, Jiang, Moore, Newns, and Klein
Klemic, K. G., Shieh, C.-C., Kirsch, G. E., and Jones, S. W. Inactivation of Kv2.1 potassium channels, 1779
Klenerman, D. *See* Keller, Rayment, and Klenerman
Klenin, K. V. *See* Merlitz, Rippe, Klenin, and Langowski
———, **Merlitz, H., and Langowski, J.** A Brownian dynamics program for the simulation of linear and circular DNA and other wormlike chain polyelectrolytes, 780
Klose, G. *See* Binder, Gutberlet, Anikin, and Klose
Kneen, M., Farinas, J., Li, Y., and Verkman, A. S. Green fluorescent protein as a noninvasive intracellular pH indicator, 1591
Knippel, E. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Koller, T. *See* Laurie, Katritch, Sogo, Koller, Dubochet, and Stasiak
Komizu, H. *See* Takeuchi, Miyamoto, Sako, Komizu, and Kusumi
Koppenol, S. *See* Ma, Koppenol, Yu, and Zografi
Korgel, B. A., van Zanten, J. H., and Monbouquette, H. G. Vesicle size distributions measured by flow field-flow fractionation coupled with multiangle light scattering, 3264
Korn, S. J. *See* Kiss and Korn
Koroyasu, S., Yamazato, M., Hirano, T., and Aizawa, S.-I. Kinetic analysis of the growth rate of the flagellar hook in *Salmonella typhimurium* by the population balance method, 436
Koshelev, S. *See* Sobolevsky and Koshelev
Kosk-Kosicka, D. *See* Lopez and Kosk-Kosicka
Koster, J. C., Bentle, K. A., Nichols, C. G., and Ho, K. Assembly of ROMK1 (Kir 1.1a) inward rectifier K^+ channel subunits involves multiple interaction sites, 1821
Koubassova, N. *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi
Kouyama, T. *See* Denkov, Yoshimura, Kouyama, Walz, and Nagayama

Kovbasnjuk, O. N. *See* Xia, Bungay, Gibson, Kovbasnjuk, and Spring
Krafft, C., Hinrichs, W., Orth, P., Saenger, W., and Welfle, H. Interaction of Tet repressor with operator DNA and with tetracycline studied by infrared and Raman spectroscopy, 63
Kramer, H. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
Krasnowska, E. K., Gratton, E., and Parasassi, T. Prodan as a membrane surface fluorescence probe: partitioning between water and phospholipid phases, 1984
Krautwurst, D. *See* Finn, Krautwurst, Schroeder, Chen, Reed, and Yau
Krinsky, V. *See* Pumir, Romey, and Krinsky
Krueger, S. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Kumar, A. *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Kurebayashi, N. and Ogawa, Y. Effect of luminal calcium on Ca^{2+} release channel activity of sarcoplasmic reticulum in situ, 1795
Kürschner, M., Nielsen, K., Andersen, C., Sukhorukov, V. L., Schenk, W. A., Benz, R., and Zimmermann, U. Interaction of lipophilic ions with the plasma membrane of mammalian cells studied by electrorotation, 3031
Kushmerick, M. J. *See* Chase, Denkinger, and Kushmerick
Kusumi, A. *See* Takeuchi, Miyamoto, Sako, Komizu, and Kusumi
Kuyucak, S., Hoyles, M., and Chung, S.-H. Analytical solutions of Poisson's equation for realistic geometrical shapes of membrane ion channels, 22
——— *See* Li, Hoyles, Kuyucak, and Chung
Kuzmin, P. I. *See* Chizmadzhev, Indenbom, Kuzmin, Galichenko, Weaver, and Potts
Kwansa, H. *See* Bucci, Gryczynski, Razynska, and Kwansa

L

Lafleur, M. *See* Paré and Lafleur
Lagerholm, B. C. and Thompson, N. L. Theory for ligand rebinding at cell membrane surfaces, 1215
Laible, P. D., Chynwat, V., Thurnauer, M. C., Schiffer, M., Hanson, D. K., and Frank, H. A. Protein modifications affecting triplet energy transfer in bacterial photosynthetic reaction centers, 2623
Laipis, P. J. *See* Tu, Qian, Earnhardt, Laipis, and Silverman
Laitko, U. and Hofmann, K. P. A model for the recovery kinetics of rod phototransduction, based on the enzymatic deactivation of rhodopsin, 803
Lakos, Z. *See* Nyitrai, Hild, Lakos, and Somogyi
Lamb, G. D. *See* Laver and Lamb
Lambert, O., Levy, D., Ranck, J.-L., Leblanc, G., and Rigaud, J.-L. A new "gel-like" phase in dodecyl maltoside-lipid mixtures: implications in solubilization and reconstitution studies, 918
Lancaster, C. R. D. *See* Kannt, Lancaster, and Michel
Langer, G. A. *See* Peskoff and Langer
Langer, T. *See* Weiger, Langer, and Hermann
Langowski, J. *See* Klenin, Merlitz, and Langowski
——— *See* Merlitz, Rippe, Klenin, and Langowski
Larsson, H. P. *See* Harris, Larsson, and Isacoff
Latza, R. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Laurie, B., Katritch, V., Sogo, J., Koller, T., Dubochet, J., and Stasiak, A. Geometry and physics of catenanes applied to the study of DNA replication, 2815
Laval, J. M. *See* Marchal, Boireau, Laval, Moiroux, and Bourdillon
Laver, D. R. and Lamb, G. D. Inactivation of Ca^{2+} release channels (ryanodine receptors RyR1 and RyR2) with rapid steps in $[Ca^{2+}]$ and voltage, 2352
——— *See* Ahern and Laver
Lear, J. D. *See* Shangguan, Siegel, Lear, Axelsen, Alford, and Bentz
Leblanc, G. *See* Lambert, Levy, Ranck, Leblanc, and Rigaud
Lee, D. A. and Goodfellow, J. M. The pH-induced release of iron from transferrin investigated with a continuum electrostatic model, 2747
Lee, D. M. *See* Regnier, Lee, and Homsher
Legrand, J.-F. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge
Lenci, F. *See* Angelini, Corrias, Fissi, Pieroni, and Lenci
Lenne, P.-F. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge
Lesieur, S. *See* Beugin, Edwards, Karlsson, Ollivon, and Lesieur
Leuba, S. H., Bustamante, C., van Holde, K., and Zlatanova, J. Linker histone tails and N-tails of histone H3 are redundant: scanning force microscopy studies of reconstituted fibers, 2830
———, **Bustamante, C., Zlatanova, J., and van Holde, K.** Contributions of linker histones and histone H3 to chromatin structure: scanning force microscopy studies on trypsinized fibers, 2823
——— *See* Zlatanova, Leuba, and van Holde
Levin, M. D., Morton-Firth, C. J., Abouhamad, W. N., Bourret, R. B., and Bray, D. Origins of individual swimming behavior in bacteria, 175
Levine, B. *See* Gordon, Berry, Liang, Levine, and Herman
Levit-Gurevich, K. *See* Gueron and Levit-Gurevich
Levitov, L. S. *See* Brenner, Levitov, and Budrene
Levy, D. *See* Lambert, Levy, Ranck, Leblanc, and Rigaud
Li, A. Z., Huang, H., Re, X., Qi, L. J., and Marx, K. A. A gel electrophoresis study of the competitive effects of monovalent counterion on the extent of divalent counterions binding to DNA, 964
Li, C. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Li, S. C., Hoyles, M., Kuyucak, S., and Chung, S.-H. Brownian dynamics study of ion transport in the vestibule of membrane channels, 37
Li, Y. *See* Kneen, Farinas, Li, and Verkman
Li, Z. W. *See* Ding, Li, and Lingle
Liang, X.-H. *See* Gordon, Berry, Liang, Levine, and Herman
Libchaber, A. *See* Goulian, Mesquita, Fygenson, Nielsen, Andersen, and Libchaber
Lin, X. *See* Venturoli, Drepper, Williams, Allen, Lin, and Mathis
Linari, M., Dobbie, I., Reconditi, M., Koubassova, N., Irving, M., Piazzesi, G., and Lombardi, V. The stiffness of skeletal muscle in isometric contraction and rigor: the fraction of myosin heads bound to actin, 2459
Lindner, P. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza
Lingle, C. J. *See* Ding, Li, and Lingle
Lionne, C. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
Litman, B. J. *See* Mitchell and Litman
Liu, W. *See* Gu, Liu, and Martinac
Livolant, F. *See* Raspaud, Olvera de la Cruz, Sikorav, and Livolant
Loew, L. M. *See* Zhang, Davidson, Wei, and Loew
Logan, M. J. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Lombardi, V. *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi
Lopatin, A. N., Makhina, E. N., and Nichols, C. G. A novel crystallization method for visualizing the membrane localization of potassium channels, 2159

Lopez, M. M. and Kosk-Kosicka, D. Spectroscopic analysis of halothane binding to the plasma membrane Ca^{2+}-ATPase, 974
Lovrien, R. *See* Matulis and Lovrien
Luan, P. *See* Denisov, Wanaski, Luan, Glaser, and McLaughlin
Luck, S. D. *See* Shastry, Luck, and Roder
Luo, Y., Wu, J.-L., Gergely, J., and Tao, T. Localization of Cys^{133} of rabbit skeletal troponin-I with respect to troponin-C by resonance energy transfer, 3111

M

Ma, J., Koppenol, S., Yu, H., and Zografi, G. Effects of a cationic and hydrophobic peptide, KL4, on model lung surfactant lipid monolayers, 1899
Ma, J.-G. *See* Jentzen, Ma, and Shelnutt
Macdonald, I. D. G., Munro, A. W., and Smith, W. E. Fatty acid-induced alteration on the porphyrin macrocycle of cytochrome P450 BM3, 3241
Machaca, K. and Hartzell, H. C. Asymmetrical distribution of Ca-activated Cl channels in *Xenopus* oocytes, 1286
MacPhee, C. E. *See* Schuck, MacPhee, and Howlett
Mädler, B. *See* Schäfer, Mädler, and Sternin
Magdoff-Fairchild, B. *See* Mu, Makowski, and Magdoff-Fairchild
Magistretti, J., Mantegazza, M., de Curtis, M., and Wanke, E. Modalities of distortion of physiological voltage signals by patch-clamp amplifiers: a modeling study, 831
Majkrzak, C. F. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Makhina, E. N. *See* Lopatin, Makhina, and Nichols
Makielski, J. C. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January
Makowski, L. An unreasonable man in a quasi-equivalent world, 534
——— *See* Bullitt and Makowski
——— *See* Mu, Makowski, and Magdoff-Fairchild
Malev, V. V. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Malinchik, S. B., Inouye, H., Szumowski, K. E., and Kirschner, D. A. Structural analysis of Alzheimer's $\beta(1-40)$ amyloid: protofilament assembly of tubular fibrils, 537
Malinina, L., Tereshko, V., Ivanova, E., Subirana, J. A., Zarytova, V., and Nekrasov, Y. Structural variability and new intermolecular interactions of Z-DNA in crystals of d(pCpGpCpGpCpG), 2482
Malinski, J. A. *See* Thuman-Commike, Greene, Malinski, King, and Chiu
Malvy, C. *See* Cherny, Fourcade, Svinarchuk, Nielsen, Malvy, and Delain
Mansoura, M. K., Smith, S. S., Choi, A. D., Richards, N. W., Strong, T. V., Drumm, M. L., Collins, F. S., and Dawson, D. C. Cystic fibrosis transmembrane conductance regulator (CTFR): anion binding as a probe of the pore, 1320
Mantegazza, M. *See* Magistretti, Mantegazza, de Curtis, and Wanke
Marban, E. *See* Ranjan, Chiamvimonvat, Thakor, Tomaselli, and Marban
Marchal, D., Boireau, W., Laval, J. M., Moiroux, J., and Bourdillon, C. Electrochemical measurement of lateral diffusion coefficients of ubiquinones and plastoquinones of various isoprenoid chain lengths incorporated in model bilayers, 1937
Marengo, J. J., Hidalgo, C., and Bull, R. Sulfhydryl oxidation modifies the calcium dependence of ryanodine-sensitive calcium channels of excitable cells, 1263
Maret, G. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
Margolis, L. *See* Hwang, Gheber, Margolis, and Edidin
Mariani, P., Ciuchi, F., and Saturni, L. Helix-specific interactions induce condensation of guanosine four-stranded helices in concentrated salt solutions, 430
Marrink, S.-J., Berger, O., Tieleman, P., and Jähnig, F. Adhesion forces of lipids in a phospholipid membrane studied by molecular dynamics simulations, 931
Martel, P. J. *See* Soares, Martel, Mendes, and Carrondo
Marten, I. and Hoshi, T. The N-terminus of the K channel KAT1 controls its voltage-dependent gating by altering the membrane electric field, 2953
Martinac, B. *See* Gu, Liu, and Martinac
Martino, J. A. and Olson, W. K. Modeling chain folding in protein-constrained circular DNA, 2491
Martyn, D. A. *See* Regnier, Martyn, and Chase
Marx, K. A. *See* Li, Huang, Re, Qi, and Marx
Mashl, R. J. and Bruinsma, R. F. Spontaneous curvature theory of clathrin-coated membranes, 2862
Massey, J. B. and Pownall, H. J. Surface properties of native human plasma lipoproteins and lipoprotein models, 869
Mateo, C. R. *See* Tauc, Mateo, and Brochon
Mathis, P. *See* Ortega, Dohse, Oesterhelt, and Mathis
——— *See* Venturoli, Drepper, Williams, Allen, Lin, and Mathis
Matsuno, M., Takeuchi, H., Overman, S. A., and Thomas, G. J., Jr. Orientations of tyrosines 21 and 24 in coat subunits of *Ff* filamentous virus: determination by Raman linear intensity difference spectroscopy and implications for subunit packing, 3217
Matthay, M. A. *See* Carter, Ölveczky, Matthay, and Verkman
Matthews, K. S. *See* Swint-Kruse, Matthews, Smith, and Pettitt
Matulis, D. and Lovrien, R. 1-Anilino-8-naphthalene sulfonate anion-protein binding depends primarily on ion pair formation, 422
Maylie, J. *See* Tzounopoulos, Maylie, and Adelman
McGough, A., Chiu, W., and Way, M. Determination of the gelsolin binding site on F-actin: implications for severing and capping, 764
McLaughlin, S. *See* Denisov, Wanaski, Luan, Glaser, and McLaughlin
McMahon, B. H., Müller, J. D., Wraight, C. A., and Nienhaus, G. U. Electron transfer and protein dynamics in the photosynthetic reaction center, 2567
Mealy, T. R. *See* Wu, Gericke, Flach, Mealy, Seaton, and Mendelsohn
Medrano, F. J. *See* Bras, Diakun, Díaz, Maret, Kramer, Bordas, and Medrano
Mehler, E. *See* Wriggers, Mehler, Pitici, Weinstein, and Schulten
Meller, A., Bar-Ziv, R., Tlusty, T., Moses, E., Stavans, J., and Safran, S. A. Localized dynamic light scattering: a new approach to dynamic measurements in optical microscopy, 1541
Meller, J. and Elber, R. Computer simulations of carbon monoxide photodissociation in myoglobin: structural interpretation of the B states, 789
Melzer, W. *See* Timmer, Müller, and Melzer
Mendelsohn, R. *See* Wu, Gericke, Flach, Mealy, Seaton, and Mendelsohn
Mendes, J. *See* Soares, Martel, Mendes, and Carrondo
Mendieta, J., Diaz-Cruz, M. S., Esteban, M., and Tauler, R. Multivariate curve resolution: a possible tool in the detection of intermediate structures in protein folding, 2876
Merkel, R. *See* Simson, Ziemann, Strigl, and Merkel
Merlitz, H., Rippe, K., Klenin, K. V., and Langowski, J. Looping dynamics of linear DNA molecules and the effect of DNA curvature: a study by Brownian dynamics simulation, 773
——— *See* Klenin, Merlitz, and Langowski
Mesquita, O. N. *See* Goulian, Mesquita, Fygenson, Nielsen, Andersen, and Libchaber

Meuse, C. W., Krueger, S., Majkrzak, C. F., Dura, J. A., Fu, J., Connor, J. T., and Plant, A. L. Hybrid bilayer membranes in air and water: infrared spectroscopy and neutron reflectivity studies, 1388
Michel, H. *See* Kannt, Lancaster, and Michel
Midson, C. *See* Song, Midson, Blachly-Dyson, Forte, and Colombini
Miklavčič, D., Beravs, K., Šemrov, D., Čemažar, M., Demšar, F., and Serša, G. The importance of electric field distribution for effective in vivo electroporation of tissues, 2152
Milanovich, N., Reinot, T., Hayes, J. M., and Small, G. J. Aluminum phthalocyanine tetrasulfonate in MCF-10F, human breast epithelial cells: a hole burning study, 2680
Milkereit, P. *See* Bischler, Balavoine, Milkereit, Tschochner, Mioskowski, and Schultz
Millonas, M. M. and Hanck, D. A. Nonequilibrium response spectroscopy of voltage-sensitive ion channel gating, 210
Mioskowski, C. *See* Bischler, Balavoine, Milkereit, Tschochner, Mioskowski, and Schultz
Mitchell, D. C. and Litman, B. J. Molecular order and dynamics in bilayers consisting of highly polyunsaturated phospholipids, 879
Mitchell, K. E. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Miyamoto, H. *See* Takeuchi, Miyamoto, Sako, Komizu, and Kusumi
Miyata, H. *See* Akashi, Miyata, Itoh, and Kinosita
Möckel, B. *See* Nagel, Kelety, Möckel, Büldt, and Bamberg
Mogilner, A. *See* Wang, Elston, Mogilner, and Oster
Moiroux, J. *See* Marchal, Boireau, Laval, Moiroux, and Bourdillon
Momsen, M. M. *See* Ali, Smaby, Momsen, Brockman, and Brown
Monbouquette, H. G. *See* Korgel, van Zanten, and Monbouquette
Moncelli, M. R., Becucci, L., Buoninsegni, F. T., and Guidelli, R. Surface dipole potential at the interface between water and self-assembled monolayers of phosphatidylserine and phosphatidic acid, 2388
Moore, D. S. *See* Self and Moore
Moore, P. B. *See* Zhong, Jiang, Moore, Newns, and Klein
Moore, S. E. *See* Simson, Yang, Moore, Doherty, Walsh, and Jacobson
Mora, M.-P. *See* Golzio, Mora, Raynaud, Delteil, Teissié, and Rols
Morán, F. *See* Chacón, Morán, Díaz, Pantos, and Andreu
Moriyama, Y., Hiyama, S., and Asai, H. High-speed video cinematographic demonstration of stalk and zooid contraction of *Vorticella convallaria*, 487
Morton, R. T. *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Morton-Firth, C. J. *See* Levin, Morton-Firth, Abouhamad, Bourret, and Bray
Moses, E. *See* Meller, Bar-Ziv, Tlusty, Moses, Stavans, and Safran
Moss, R. L. *See* Patel, Diffee, Huang, and Moss
Motoki, M. *See* Eligula, Chuang, Phillips, Motoki, Seguro, and Muhlrad
Mouritsen, O. G. *See* Sabra and Mouritsen
Mu, X.-Q., Makowski, L., and Magdoff-Fairchild, B. Analysis of the stability of hemoglobin S double strands, 655
Muegge, I. *See* Sham, Muegge, and Warshel
Mueller, T. D. *See* Fatt, Giasson, and Mueller
Muhlrad, A. *See* Eligula, Chuang, Phillips, Motoki, Seguro, and Muhlrad
Mukasa, K. *See* Hayakawa, Naganuma, Mukasa, Shimozawa, and Araiso
Müller, J. D. *See* McMahon, Müller, Wraight, and Nienhaus
Müller, T. *See* Timmer, Müller, and Melzer
Munro, A. W. *See* Macdonald, Munro, and Smith
Murata, M. *See* Ohnishi, Murata, and Hato

N

Nag, K., Perez-Gil, J., Ruano, M. L. F., Worthman, L. A. D., Stewart, J., Casals, C., and Keough, K. M. W. Phase transitions in films of lung surfactant at the air-water interface, 2983
Nag, K. *See* Ruano, Nag, Worthman, Casals, Pérez-Gil, and Keough
Naganuma, M. *See* Hayakawa, Naganuma, Mukasa, Shimozawa, and Araiso
Nagayama, K. *See* Denkov, Yoshimura, Kouyama, Walz, and Nagayama
Nagel, G., Kelety, B., Möckel, B., Büldt, G., and Bamberg, E. Voltage dependence of proton pumping by bacteriorhodopsin is regulated by the voltage-sensitive ratio of M_1 to M_2, 403
Nageswaran, S. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh
Nagle, J. F. *See* Tristram-Nagle, Petrache, Suter, and Nagle
Naglieri, A. *See* Bordi, Cametti, and Naglieri
Nakamura, H. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka
Namba, K. *See* Hasegawa, Yamashita, and Namba
Neher, E. *See* Haller, Heinemann, Chow, Heidelberger, and Neher
Nekrasov, Y. *See* Malinina, Tereshko, Ivanova, Subirana, Zarytova, and Nekrasov
Nelson, P. New measurements of DNA twist elasticity, 2501
Netoff, T. I. *See* So, Francis, Netoff, Gluckman, and Schiff
Neu, B. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Neumann, E., Toensing, K., Kakorin, S., Budde, P., and Frey, J. Mechanism of electroporative dye uptake by mouse B cells, 98
Newns, D. M. *See* Zhong, Jiang, Moore, Newns, and Klein
Nichols, C. G. *See* Koster, Bentle, Nichols, and Ho
——— *See* Lopatin, Makhina, and Nichols
Nielsen, C., Goulian, M., and Andersen, O. S. Energetics of inclusion-induced bilayer deformations, 1966
Nielsen, C. *See* Goulian, Mesquita, Fygenson, Nielsen, Andersen, and Libchaber
Nielsen, K. *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann
Nielsen, P. E. *See* Cherny, Fourcade, Svinarchuk, Nielsen, Malvy, and Delain
Nienhaus, G. U. *See* McMahon, Müller, Wraight, and Nienhaus
Niewöhner, J. *See* Simson, Wallraff, Faix, Niewöhner, Gerisch, and Sackmann
Nilsson, L. *See* Norberg and Nilsson
Nonner, W., Chen, D. P., and Eisenberg, B. Anomalous mole fraction effect, electrostatics, and binding in ionic channels, 2327
Norberg, J. and Nilsson, L. Solvent influence on base stacking, 394
Norin, T. *See* Hæffner, Norin, and Hult
Novoderezhkin, V. I., Taisova, A. S., Fetisova, Z. G., Blankenship, R. E., Savikhin, S., Buck, D. R., and Struve, W. S. Energy transfers in the B808–866 antenna from the green bacterium *Chloroflexus aurantiacus*, 2069
Ny, T. *See* Karolin, Fa, Wilczynska, Ny, and Johansson
Nyitrai, M., Hild, G., Lakos, Z., and Somogyi, B. Effect of Ca^{2+}-Mg^{2+} exchange on the flexibility and/or conformation of the small domain in monomeric actin, 2474

O

Odenbach, S. *See* Gliss, Clausen-Schaumann, Günther, Odenbach, Randl, and Bayerl

Oesterhelt, D. *See* Ortega, Dohse, Oesterhelt, and Mathis
Ogawa, Y. *See* Kurebayashi and Ogawa
Ogbaghebriel, A. *See* Paquette, Clay, Ogbaghebriel, and Shrier
Ohnishi, S., Murata, M., and Hato, M. Correlation between surface morphology and surface forces of protein A adsorbed on mica, 455
Ohnishi, T. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno
Oldenbourg, R., Salmon, E. D., and Tran, P. T. Birefringence of single and bundled microtubules, 645
Oliver, D., Hahn, H., Antz, C., Ruppersberg, J. P., and Fakler, B. Interaction of permeant and blocking ions in cloned inward-rectifier K^+ channels, 2318
Ollivon, M. *See* Beugin, Edwards, Karlsson, Ollivon, and Lesieur
Olson, W. K. *See* Martino and Olson
Ölveczky, B. P. and Verkman, A. S. Monte Carlo analysis of obstructed diffusion in three dimensions: application to molecular diffusion in organelles, 2722
Ölveczky, B. P. *See* Carter, Ölveczky, Matthay, and Verkman
Olvera de la Cruz, M. *See* Raspaud, Olvera de la Cruz, Sikorav, and Livolant
Opella, S. J. *See* Bechinger, Zasloff, and Opella
Ortega, J. M., Dohse, B., Oesterhelt, D., and Mathis, P. Low-temperature electron transfer from cytochrome to the special pair in *Rhodopseudomonas viridis*: role of the L162 residue, 1135
Orth, P. *See* Krafft, Hinrichs, Orth, Saenger, and Welfle
O'Shea, P. *See* Cladera and O'Shea
Osman, R. *See* Colson, Perlman, Smolyar, Gershengorn, and Osman
Oster, G. *See* Chauwin, Oster, and Glick
——— *See* Wang, Elston, Mogilner, and Oster
Ott, A. *See* Wiggins, Riveline, Ott, and Goldstein
Otto, C. *See* Sijtsema, Otto, Segers-Nolten, Verhoeven, and Greve
Overman, S. A. *See* Matsuno, Takeuchi, Overman, and Thomas

P

Paige, M. F., Rainey, J. K., and Goh, M. C. Fibrous long spacing collagen ultrastructure elucidated by atomic force microscopy, 3211
Pålsson, L.-O., Flemming, C., Gobets, B., van Grondelle, R., Dekker, J. P., and Schlodder, E. Energy transfer and charge separation in photosystem I: P700 oxidation upon selective excitation of the long-wavelength antenna chlorophylls of *Synechococcus elongatus.*, 2611
Pantos, E. *See* Chacón, Morán, Díaz, Pantos, and Andreu
Papke, R. L. *See* Francis, Choi, Horenstein, and Papke
Paquet, M.-J. *See* Picard, Paquet, Dufourc, and Auger
Paquette, T., Clay, J. R., Ogbaghebriel, A., and Shrier, A. Effects of divalent cations on the E-4031-sensitive repolarization current, I_{Kr}, in rabbit ventricular myocytes, 1278
Parasassi, T. *See* Krasnowska, Gratton, and Parasassi
Pardo, L., Pastor, N., and Weinstein, H. Progressive DNA bending is made possible by gradual changes in the torsion angle of the glycosyl bond, 2191
Paré, C. and Lafleur, M. Polymorphism of POPE/cholesterol system: a ^2H nuclear magnetic resonance and infrared spectroscopic investigation, 899
Parkash, J., Robblee, J. H., Agnew, J., Gibbs, E., Collings, P., Pasternack, R. F., and de Paula, J. C. Depolarized resonance light scattering by porphyrin and chlorophyll *a* aggregates, 2089
Parnas, H. *See* Tour, Parnas, and Parnas
Parnas, I. *See* Tour, Parnas, and Parnas
Parson, W. W., Chu, Z. T., and Warshel, A. Reorganization energy of the initial electron-transfer step in photosynthetic bacterial reaction centers, 182
Pasternack, R. F. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula
Pastor, N. *See* Pardo, Pastor, and Weinstein
Pate, E., Franks-Skiba, K., and Cooke, R. Depletion of phosphate in active muscle fibers probes actomyosin states within the powerstroke, 369
Patel, J. R., Diffee, G. M., Huang, X. P., and Moss, R. L. Phosphorylation of myosin regulatory light chain eliminates force-dependent changes in relaxation rates in skeletal muscle, 360
Patil, S. D. *See* Falk, Guay, Chenu, Patil, and Berteloot
Paula, S., Volkov, A. G., and Deamer, D. W. Permeation of halide anions through phospholipid bilayers occurs by the solubility-diffusion mechanism, 319
Pérez-Gil, J. *See* Nag, Pérez-Gil, Ruano, Worthman, Stewart, Casals, and Keough
——— *See* Ruano, Nag, Worthman, Casals, Pérez-Gil, and Keough
Perham, R. N. *See* van den Berg, van Hoek, Walentas, Perham, and Visser
Perlman, J. H. *See* Colson, Perlman, Smolyar, Gershengorn, and Osman
Pernarowski, M. *See* Bertram and Pernarowski
Peskoff, A. and Langer, G. A. Calcium concentration and movement in the ventricular cardiac cell during an excitation-contraction cycle, 153
Petrache, H. I. *See* Tristram-Nagle, Petrache, Suter, and Nagle
Pettitt, B. M. *See* Swint-Kruse, Matthews, Smith, and Pettitt
Petty, H. R. *See* Kindzelskii, Zhou, Haugland, Boxer, and Petty
Phillips, M. L. *See* Eligula, Chuang, Phillips, Motoki, Seguro, and Muhlrad
Piazzesi, G. *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi
Picard, F., Paquet, M.-J., Dufourc, E. J., and Auger, M. Measurement of the lateral diffusion of dipalmitoylphosphatidylcholine adsorbed on silica beads in the absence and presence of melittin: a ^{31}P two-dimensional exchange solid-state NMR study, 857
Pieroni, O. *See* Angelini, Corrias, Fissi, Pieroni, and Lenci
Piper, J. W., Swerlick, R. A., and Zhu, C. Determining force dependence of two-dimensional receptor-ligand binding affinity by centrifugation, 492
Piroddi, N. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
——— *See* Brandt, Colomo, Piroddi, Poggesi, and Tesi
Pitici, F. *See* Wriggers, Mehler, Pitici, Weinstein, and Schulten
Planchart, A. *See* Wang, Planchart, and Stubbs
Plant, A. L. *See* Meuse, Krueger, Majkrzak, Dura, Fu, Connor, and Plant
Plonsky, I. *See* Ratinov, Plonsky, and Zimmerberg
Plückthun, A. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza
Podgornik, R. Review of Lasic: *Liposomes in Gene Delivery*, 2138
Poggesi, C. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
——— *See* Brandt, Colomo, Piroddi, Poggesi, and Tesi
Pollack, G. H. *See* Yang, Tameyasu, and Pollack
Pollard, T. D. *See* Xu, Schwarz, Käs, Stossel, Janmey, and Pollard
Polm, M. and Brettel, K. Secondary pair charge recombination in photosystem I under strongly reducing conditions: temperature dependence and suggested mechanism, 3173
Polosukhina, K. *See* Highsmith, Duignan, Franks-Skiba, Polosukhina, and Cooke
Poole, K. J. V. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Pope, J. M. *See* Yoon, Pope, and Wolfe

Post, C. B. *See* Reddy, Giesing, Morton, Kumar, Post, Brooks, and Johnson
Potts, R. O. *See* Chizmadzhev, Indenbom, Kuzmin, Galichenko, Weaver, and Potts
Pownall, H. J. *See* Massey and Pownall
Price, W. S., Barzykin, A. V., Hayamizu, K., and Tachiya, M. A model for diffusive transport through a spherical interface probed by pulsed-field gradient NMR, 2259
Priev, A. *See* Tirosh, Barenholz, Katzhendler, and Priev
Prosser, R. S., Hwang, J. S., and Vold, R. R. Magnetically aligned phospholipid bilayers with positive ordering: a new model membrane system, 2405
Prunell, A. A topological approach to nucleosome structure and dynamics: the linking number paradox and other issues, 2531
Pumir, A., Romey, G., and Krinsky, V. Deexcitation of cardiac cells, 2850

Q

Qi, L. J. *See* Li, Huang, Re, Qi, and Marx
Qian, H. *See* Klapper and Qian
Qian, M. *See* Tu, Qian, Earnhardt, Laipis, and Silverman
Qin, Z. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier
Quantock, A. J., Kinoshita, S., Capel, M. S., and Schanzlin, D. J. A synchrotron x-ray diffraction study of developing chick corneas, 995

R

Rachel, R. *See* Grimm, Singh, Rachel, Typke, Zillig, and Baumeister
Radke, G. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Rahuel-Clermont, S. *See* Strambini, Gabellieri, Gonnelli, Rahuel-Clermont, and Branlant
Rainey, J. K. *See* Paige, Rainey, and Goh
Ramos, C. *See* Teissié and Ramos
Ranck, J.-L. *See* Lambert, Levy, Ranck, Leblanc, and Rigaud
Rand, R. P. *See* Chen and Rand
Randl, O. *See* Gliss, Clausen-Schaumann, Günther, Odenbach, Randl, and Bayerl
Ranjan, R., Chiamvimonvat, N., Thakor, N. V., Tomaselli, G. F., and Marban, E. Mechanism of anode break stimulation in the heart, 1850
Rao, S. N. Molecular mechanics studies on the conformations of 2′,3′-dideoxy-2′,3′-didehydroguanine nucleoside, D4G, 3131
Raspaud, E., Olvera de la Cruz, M., Sikorav, J.-L., and Livolant, F. Precipitation of DNA by polyamines: a polyelectrolyte behavior, 381
Rath, P., DeGrip, W. J., and Rothschild, K. J. Photoactivation of rhodopsin causes an increased hydrogen-deuterium exchange of buried peptide groups, 192
Ratinov, V., Plonsky, I., and Zimmerberg, J. Fusion pore conductance: experimental approaches and theoretical algorithms, 2374
Rayment, T. *See* Keller, Rayment, and Klenerman
Raynaud, C. *See* Golzio, Mora, Raynaud, Delteil, Teissié, and Rols
Razynska, A. *See* Bucci, Gryczynski, Razynska, and Kwansa
Re, X. *See* Li, Huang, Re, Qi, and Marx
Rechenmacher, C. E. *See* Hüser, Rechenmacher, and Blatter
Reconditi, M. *See* Linari, Dobbie, Reconditi, Koubassova, Irving, Piazzesi, and Lombardi
Reddy, V. S., Giesing, H. A., Morton, R. T., Kumar, A., Post, C. B., Brooks, C. L., III, and Johnson, J. E. Energetics of quasiequivalence: computational analysis of protein-protein interactions in icosahedral viruses, 546
Reed, R. R. *See* Finn, Krautwurst, Schroeder, Chen, Reed, and Yau
Reedy, M. C. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Reedy, M. K. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Regehr, W. G. *See* Sabatini and Regehr
Regnier, M. and Homsher, E. The effect of ATP analogs on posthydrolytic and force development steps in skinned skeletal muscle fibers, 3059
———, **Lee, D. M., and Homsher, E.** ATP analogs and muscle contraction: mechanics and kinetics of nucleoside triphosphate binding and hydrolysis, 3044
———, **Martyn, D. A., and Chase, P. B.** Calcium regulation of tension redevelopment kinetics with 2-deoxy-ATP or low [ATP] in rabbit skeletal muscle, 2005
Reinot, T. *See* Milanovich, Reinot, Hayes, and Small
Renault, A. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge
Rice, J. J. *See* Jafri, Rice, and Winslow
Richards, N. W. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Richmond, J. E., Featherstone, D. E., Hartmann, H. A., and Ruben, P. C. Slow inactivation in human cardiac sodium channels, 2945
Rigaud, J.-L. *See* Lambert, Levy, Ranck, Leblanc, and Rigaud
Rippe, K. *See* Merlitz, Rippe, Klenin, and Langowski
Riveline, D. *See* Wiggins, Riveline, Ott, and Goldstein
Rixon, F. J. *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott
Robblee, J. H. *See* Parkash, Robblee, Agnew, Gibbs, Collings, Pasternack, and de Paula
Robert, B. *See* Sturgis, Robert, and Goormaghtigh
Roberts, W. M. *See* Anson and Roberts
Robertson, G. A. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January
Robillard, G. T. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard
Roder, H. *See* Shastry, Luck, and Roder
Rolland, A. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Rols, M.-P. *See* Golzio, Mora, Raynaud, Delteil, Teissié, and Rols
Romey, G. *See* Pumir, Romey, and Krinsky
Rostovtseva, T. K. and Bezrukov, S. M. ATP transport through a single mitochondrial channel, VDAC, studied by current fluctuation analysis, 2365
Rothschild, K. J. *See* Rath, DeGrip, and Rothschild
Roux, B. Molecular dynamics simulations of biomolecular systems: how far have we gone and where are we heading?, 2744
Rouzina, I. and Bloomfield, V. A. DNA bending by small, mobile multivalent cations, 3152
Ruano, M. L. F., Nag, K., Worthman, L.-A., Casals, C., Pérez-Gil, J., and Keough, K. W. Differential partitioning of pulmonary surfactant protein SP-A into regions of monolayers of dipalmitoylphosphatidylcholine and dipalmitoylphosphatidylcholine/dipalmitoylphosphatidylglycerol, 1101
——— *See* Nag, Perez-Gil, Ruano, Worthman, Stewart, Casals, and Keough
Ruben, P. C. *See* Richmond, Featherstone, Hartmann, and Ruben
Rudnick, J. *See* Ahsan, Rudnick, and Bruinsma
Ruff, R. L. Cells use the singular properties of different channels to produce unique electrical songs, 2745

Ruppersberg, J. P. *See* Oliver, Hahn, Antz, Ruppersberg, and Fakler
Rupprecht, A. *See* Urabe, Sugawara, Ataka, and Rupprecht
Ruysschaert, J.-M. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard

S

Saavedra, S. S. *See* Edmiston and Saavedra
Sabatini, B. L. and Regehr, W. G. Optical measurement of presynaptic calcium currents, 1549
Saber, H. *See* Demeler and Saber
Sabido-David, C., Brandmeier, B., Craik, J. S., Corrie, J. E. T., Trentham, D. R., and Irving, M. Steady-state fluorescence polarization studies of the orientation of myosin regulatory light chains in single skeletal muscle fibers using pure isomers of iodoacetamidotetramethylrhodamine, 3083
——— *See* Hopkins, Sabido-David, Corrie, Irving, and Goldman
Sabra, M. C. and Mouritsen, O. G. Steady-state compartmentalization of lipid membranes by active proteins, 745
Sackmann, E. *See* Simson, Wallraff, Faix, Niewöhner, Gerisch, and Sackmann
Saenger, W. *See* Krafft, Hinrichs, Orth, Saenger, and Welfle
Safran, S. A. *See* Meller, Bar-Ziv, Tlusty, Moses, Stavans, and Safran
Sako, Y. *See* Takeuchi, Miyamoto, Sako, Komizu, and Kusumi
Salmon, E. D. *See* Oldenbourg, Salmon, and Tran
Sasaki, K. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno
Saturni, L. *See* Mariani, Ciuchi, and Saturni
Savikhin, S. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Schäfer, H., Mädler, B., and Sternin, E. Determination of orientational order parameters from ^{2}H NMR spectra of magnetically partially oriented lipid bilayers, 1007
Schagina, L. V. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Schanzlin, D. J. *See* Quantock, Kinoshita, Capel, and Schanzlin
Schenk, W. A. *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann
Schief, W. R., Jr. *See* Frey, Brink, Schief, Chiu, and Vogel
Schiff, S. J. *See* So, Francis, Netoff, Gluckman, and Schiff
Schiffer, M. *See* Laible, Chynwat, Thurnauer, Schiffer, Hanson, and Frank
Schlick, T. *See* Derreumaux and Schlick
Schlodder, E. *See* Pålsson, Flemming, Gobets, van Grondelle, Dekker, and Schlodder
Schmidt, C. F. *See* Allersma, Gittes, deCastro, Stewart, and Schmidt
Schmidt, T. *See* Schütz, Trabesinger, and Schmidt
Schmitz, H. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Schneggenburger, R. Altered voltage dependence of fractional Ca^{2+} current in *N*-methyl-D-aspartate channel pore mutants with a decreased Ca^{2+} permeability, 1790
Schnell, J. R., Berman, J., and Bloomfield, V. A. Insertion of telomere repeat sequence decreases plasmid DNA condensation by cobalt (III) hexaammine, 1484
Schoenberg, M. *See* Xu, Yu, and Schoenberg
Schoenenberger, C.-A. *See* A-Hassan, Heinz, Antonik, D'Costa, Nageswaran, Schoenenberger, and Hoh
Scholtmeijer, K. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard
Schöneich, C. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier
Schroeder, J. E. *See* Finn, Krautwurst, Schroeder, Chen, Reed, and Yau
Schuck, P., MacPhee, C. E., and Howlett, G. J. Determination of sedimentation coefficients for small peptides, 466
Schulten, K. *See* Wriggers, Mehler, Pitici, Weinstein, and Schulten
Schultz, P. *See* Bischler, Balavoine, Milkereit, Tschochner, Mioskowski, and Schultz
Schumaker, M. F. and Kentler, C. J. Far-field analysis of coupled bulk and boundary layer diffusion toward an ion channel entrance, 2235
Schütz, G. J., Trabesinger, W., and Schmidt, T. Direct observation of ligand colocalization on individual receptor molecules, 2223
Schwarz, W. H. *See* Xu, Schwarz, Käs, Stossel, Janmey, and Pollard
Scott, A. J. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Scott, L. R. *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott
Seaton, B. A. *See* Wu, Gericke, Flach, Mealy, Seaton, and Mendelsohn
Seetharaman, J. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri
Segers-Nolten, G. M. J. *See* Sijtsema, Otto, Segers-Nolten, Verhoeven, and Greve
Seguro, K. *See* Eligula, Chuang, Phillips, Motoki, Seguro, and Muhlrad
Seifert, U. *See* Shillcock and Seifert
Self, B. D. and Moore, D. S. Nucleic acid vibrational circular dichroism, absorption, and linear dichroism spectra. II. A DeVoe theory approach, 2249
Selvin, P. R. *See* Getz, Cooke, and Selvin
——— *See* Vereb, Jares-Erijman, Selvin, and Jovin
Semenza, G. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza
Šemrov, D. *See* Miklavčič, Beravs, Šemrov, Čemažar, Demšar, and Serša
Serša, G. *See* Miklavčič, Beravs, Šemrov, Čemažar, Demšar, and Serša
Sessions, R. B., Gibbs, N., and Dempsey, C. E. Hydrogen bonding in helical polypeptides from molecular dynamics simulations and amide hydrogen exchange analysis: alamethicin and melittin in methanol, 138
Shafrir, Y. *See* Forgacs, Foty, Shafrir, and Steinberg
Sham, Y. Y., Muegge, I., and Warshel, A. The effect of protein relaxation on charge-charge interactions and dielectric constants of proteins, 1744
Shangguan, T., Siegel, D. P., Lear, J. D., Axelsen, P. H., Alford, D., and Bentz, J. Morphological changes and fusogenic activity of the influenza virus hemagglutinin, 54
Sharp, K. A. Calculation of electron transfer reorganization energies using the finite difference Poisson-Boltzmann model, 1241
Shastry, M. C. R., Luck, S. D., and Roder, H. A continuous-flow capillary mixing method to monitor reactions on the microsecond time scale, 2714
Shelnutt, J. A. *See* Jentzen, Ma, and Shelnutt
Shi, M. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Shieh, C.-C. *See* Klemic, Shieh, Kirsch, and Jones
Shillcock, J. C. and Seifert, U. Thermally induced proliferation of pores in a model fluid membrane, 1754
Shilov, V. M. *See* Georgieva, Neu, Shilov, Knippel, Budde, Latza, Donath, Kiesewetter, and Bäumler
Shimozawa, T. *See* Hayakawa, Naganuma, Mukasa, Shimozawa, and Araiso

Shinagawa, H. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka
Shrier, A. *See* Paquette, Clay, Ogbaghebriel, and Shrier
Sicheri, F. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri
Siegel, D. P. *See* Shangguan, Siegel, Lear, Axelsen, Alford, and Bentz
Sigeno, M. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno
Sijtsema, N. M., Otto, C., Segers-Nolten, G. M. J., Verhoeven, A. J., and Greve, J. Resonance Raman microspectroscopy of myeloperoxidase and cytochrome b_{558} in human neutrophilic granulocytes, 3250
Sikorav, J.-L. *See* Raspaud, Olvera de la Cruz, Sikorav, and Livolant
Silverman, D. N. *See* Tu, Qian, Earnhardt, Laipis, and Silverman
Simson, D. A., Ziemann, F., Strigl, M., and Merkel, R. Micropipet-based pico force transducer: in depth analysis and experimental verification, 2080
Simson, R., Wallraff, E., Faix, J., Niewöhner, J., Gerisch, G., and Sackmann, E. Membrane bending modulus and adhesion energy of wild-type and mutant cells of *Dictyostelium* lacking talin or cortexillins, 514
———, Yang, B., Moore, S. E., Doherty, P., Walsh, F. S., and Jacobson, K. A. Structural mosaicism on the submicron scale in the plasma membrane, 297
Singh, H. *See* Grimm, Singh, Rachel, Typke, Zillig, and Baumeister
Sitsapesan, R. *See* Kermode, Williams, and Sitsapesan
Smaby, J. M. *See* Ali, Smaby, Momsen, Brockman, and Brown
Small, G. J. *See* Milanovich, Reinot, Hayes, and Small
Smith, L. C. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Smith, P. E. *See* Swint-Kruse, Matthews, Smith, and Pettitt
Smith, S. B. Twisting DNA molecules, 1609
Smith, S. S. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Smith, W. E. *See* Macdonald, Munro, and Smith
Smolyar, A. *See* Colson, Perlman, Smolyar, Gershengorn, and Osman
So, P., Francis, J., Netoff, T. I., Gluckman, B. J., and Schiff, S. J. Periodic orbits: a new language for neuronal dynamics, 2776
Soares, C. M., Martel, P. J., Mendes, J., and Carrondo, M. A. Molecular dynamics simulation of cytochrome c_3: studying the reduction processes using free energy calculations, 1708
Sobolevsky, A. and Koshelev, S. Two blocking sites of aminoadamantane derivatives in open *N*-methyl-D-aspartate channels, 1305
Sogo, J. *See* Laurie, Katritch, Sogo, Koller, Dubochet, and Stasiak
Sohma, Y., Harris, A., Argent, B. E., and Gray, M. A. A novel type of internal barium block of a maxi-K^+ channel from human vas deferens epithelial cells, 199
Sokolov, V. S., Apell, H.-J., Corrie, J. E. T., and Trentham, D. R. Fast transient currents in the Na,K-ATPase induced by ATP concentration jumps from the P^3-[1-(3′,5′-dimethoxyphenyl)-2-phenyl-2-oxo]ethyl ester of ATP, 2285
Solsona, C., Innocenti, B., and Fernández, J. M. Regulation of exocytotic fusion by cell inflation, 1061
Somlyo, A. P. *See* Horikawa, Goel, Somlyo, and Somlyo
Somlyo, A. V. *See* Horikawa, Goel, Somlyo, and Somlyo
Somogyi, B. *See* Nyitrai, Hild, Lakos, and Somogyi
Song, J., Midson, C., Blachly-Dyson, E., Forte, M., and Colombini, M. The sensor regions of VDAC are translocated from within the membrane to the surface during the gating processes, 2926
Sonnino, S. *See* Brocca, Berthault, and Sonnino
Sonveaux, N. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard
Sparrow, J. T. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Spears, H., Jr. *See* Zhou, Chiu, Haskell, Spears, Jakana, Rixon, and Scott
Spring, K. R. *See* Xia, Bungay, Gibson, Kovbasnjuk, and Spring
Squier, T. C. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier
Stacey, W. C. *See* Block, Stacey, and Jones
Stasiak, A. *See* Laurie, Katritch, Sogo, Koller, Dubochet, and Stasiak
Stavans, J. *See* Meller, Bar-Ziv, Tlusty, Moses, Stavans, and Safran
Stehle, R. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
Steinberg, M. S. *See* Forgacs, Foty, Shafrir, and Steinberg
Sternin, E. *See* Schäfer, Mädler, and Sternin
Stewart, J. *See* Nag, Perez-Gil, Ruano, Worthman, Stewart, Casals, and Keough
Stewart, R. J. *See* Allersma, Gittes, deCastro, Stewart, and Schmidt
Stossel, T. P. *See* Xu, Schwarz, Käs, Stossel, Janmey, and Pollard
Strambini, G. B., Gabellieri, E., Gonnelli, M., Rahuel-Clermont, S., and Branlant, G. Tyrosine quenching of tryptophan phosphorescence in glyceraldehyde-3-phosphate dehydrogenase from *Bacillus stearothermophilus*, 3165
Strick, T. R., Allemand, J.-F., Bensimon, D., and Croquette, V. Behavior of supercoiled DNA, 2016
Strigl, M. *See* Simson, Ziemann, Strigl, and Merkel
Strong, T. V. *See* Mansoura, Smith, Choi, Richards, Strong, Drumm, Collins, and Dawson
Struve, W. S. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Stubbs, G. *See* Wang, Planchart, and Stubbs
Stucki, J. W. *See* Chatton, Cao, and Stucki
Sturgis, J., Robert, B., and Goormaghtigh, E. Transmembrane helix stability: the effect of helix-helix interactions studied by Fourier transform infrared spectroscopy, 988
Subirana, J. A. *See* Malinina, Tereshko, Ivanova, Subirana, Zarytova, and Nekrasov
Sugawara, Y. *See* Urabe, Sugawara, Ataka, and Rupprecht
Sukhorukov, V. L. *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann
Sullivan, L. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto
Sun, H. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier
Suter, R. M. *See* Tristram-Nagle, Petrache, Suter, and Nagle
Svinarchuk, F. *See* Cherny, Fourcade, Svinarchuk, Nielsen, Malvy, and Delain
Swerlick, R. A. *See* Piper, Swerlick, and Zhu
Swigon, D., Coleman, B. D., and Tobias, I. The elastic rod model for DNA and its application to the tertiary structure of DNA minicircles in mononucleosomes, 2515
Swint-Kruse, L., Matthews, K. S., Smith, P. E., and Pettitt, B. M. Comparison of simulated and experimentally determined dynamics for a variant of the LacI DNA-binding domain, N*lac*-P, 413
Szumowski, K. E. *See* Malinchik, Inouye, Szumowski, and Kirschner

T

Taber, L. A. An optimization principle for vascular radius including the effects of smooth muscle tone, 109

Tachiya, M. *See* Price, Barzykin, Hayamizu, and Tachiya
Taisova, A. S. *See* Novoderezhkin, Taisova, Fetisova, Blankenship, Savikhin, Buck, and Struve
Takemoto, J. Y. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Takeuchi, H. *See* Matsuno, Takeuchi, Overman, and Thomas
Takeuchi, M., Miyamoto, H., Sako, Y., Komizu, H., and Kusumi, A. Structure of the erythrocyte membrane skeleton as observed by atomic force microscopy, 2171
Takizawa, T. *See* Hirai, Iwase, Arai, Takizawa, and Hayashi
——— *See* Hirai and Takizawa
Tameyasu, T. *See* Yang, Tameyasu, and Pollack
Tao, T. *See* Luo, Wu, Gergely, and Tao
Tauc, P., Mateo, C. R., and Brochon, J.-C. Pressure effects on the lateral distribution of cholesterol in lipid bilayers: a time-resolved spectroscopy study, 1864
Tauler, R. *See* Mendieta, Diaz-Cruz, Esteban, and Tauler
Teeter, J. H. *See* Kaulin, Schagina, Bezrukov, Malev, Feigin, Takemoto, Teeter, and Brand
Teissié, J. and Ramos, C. Correlation between electric field pulse induced long-lived permeabilization and fusogenicity in cell membranes, 1889
——— *See* Golzio, Mora, Raynaud, Delteil, Teissié, and Rols
Tereshko, V. *See* Malinina, Tereshko, Ivanova, Subirana, Zarytova, and Nekrasov
Tesi, C. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
——— *See* Brandt, Colomo, Piroddi, Poggesi, and Tesi
Thakor, N. V. *See* Ranjan, Chiamvimonvat, Thakor, Tomaselli, and Marban
Thomas, G. J., Jr. *See* Matsuno, Takeuchi, Overman, and Thomas
Thompson, N. L. *See* Lagerholm and Thompson
Thuman-Commike, P. A., Greene, B., Malinski, J. A., King, J., and Chiu, W. Role of the scaffolding protein in P22 procapsid size determination examined by $T = 4$ and $T = 7$ procapsid structures, 559
Thurnauer, M. C. *See* Laible, Chynwat, Thurnauer, Schiffer, Hanson, and Frank
Tieleman, D. P. and Berendsen, H. J. C. A molecular dynamics study of the pores formed by *Escherichia coli* OmpF porin in a fully hydrated palmitoylolelylphosphatidylcholine bilayer, 2786
Tieleman, P. *See* Marrink, Berger, Tieleman, and Jähnig
Tikhonov, D. B. and Zhorov, B. S. Kinked-helices model of the nicotinic acetylcholine receptor ion channel and its complexes with blockers: simulation by the Monte Carlo minimization method, 242
Timmer, J., Müller, T., and Melzer, W. Numerical methods to determine calcium release flux from calcium transients in muscle cells, 1694
Tirosh, O., Barenholz, Y., Katzhendler, J., and Priev, A. Hydration of polyethylene glycol-grafted liposomes, 1371
Tlusty, T. *See* Meller, Bar-Ziv, Tlusty, Moses, Stavans, and Safran
Tobias, I. A theory of thermal fluctuations in DNA miniplasmids, 2545
——— *See* Swigon, Coleman, and Tobias
Toensing, K. *See* Neumann, Toensing, Kakorin, Budde, and Frey
Tomaselli, G. F. *See* Ranjan, Chiamvimonvat, Thakor, Tomaselli, and Marban
Tomich, J. M., Wallace, D., Henderson, K., Mitchell, K. E., Radke, G., Brandt, R., Ambler, C. A., Scott, A. J., Grantham, J., Sullivan, L., and Iwamoto, T. Aqueous solubilization of transmembrane peptide sequences with retention of membrane insertion and function, 256
Tomlinson, E. *See* Duguid, Li, Shi, Logan, Alila, Rolland, Tomlinson, Sparrow, and Smith
Tour, O., Parnas, H., and Parnas, I. Depolarization increases the single-channel conductance and the open probability of crayfish glutamate channels, 1767
Towns-Andrews, E. *See* Tregear, Edwards, Irving, Poole, Reedy, Schmitz, Towns-Andrews, and Reedy
Trabesinger, W. *See* Schütz, Trabesinger, and Schmidt
Tran, P. T. *See* Oldenbourg, Salmon, and Tran
Travers, F. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb
Tregear, R. T., Edwards, R. J., Irving, T. C., Poole, K. J. V., Reedy, M. C., Schmitz, H., Towns-Andrews, E., and Reedy, M. K. X-ray diffraction indicates that active cross-bridges bind to actin target zones in insect flight muscle, 1439
Trentham, D. R. *See* Sabido-David, Brandmeier, Craik, Corrie, Trentham, and Irving
——— *See* Sokolov, Apell, Corrie, and Trentham
Trimble, A. C. *See* Daniel, Trimble, and Chase
Tripathi, S. and Hladky, S. B. Streaming potentials in gramicidin channels measured with ion-selective microelectrodes, 2912
Tristram-Nagle, S., Petrache, H. I., Suter, R. M., and Nagle, J. F. Effect of substrate roughness on D spacing supports theoretical resolution of vapor pressure paradox, 1421
Tsai, M. A., Waugh, R. E., and Keng, P. C. Passive mechanical behavior of human neutrophils: effects of colchicine and paclitaxel, 3282
Tschochner, H. *See* Bischler, Balavoine, Milkereit, Tschochner, Mioskowski, and Schultz
Tu, C., Qian, M., Earnhardt, J. N., Laipis, P. J., and Silverman, D. N. Properties of intramolecular proton transfer in carbonic anhydrase III, 3182
Tychko, M. *See* Woolf and Tychko
Typke, D. *See* Grimm, Singh, Rachel, Typke, Zillig, and Baumeister
Tzounopoulos, T., Maylie, J., and Adelman, J. P. Gating of I_{sK} channels expressed in *Xenopus* oocytes, 2299

U

Ujj, L., Jäger, F., and Atkinson, G. H. Vibrational spectrum of the lumi intermediate in the room temperature rhodopsin photoreaction, 1492
Urabe, H., Sugawara, Y., Ataka, M., and Rupprecht, A. Low-frequency Raman spectra of lysozyme crystals and oriented DNA films: dynamics of crystal water, 1533
Ushiki, T. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno
Uttenweiler, D., Weber, C., and Fink, R. H. A. Mathematical modeling and fluorescence imaging to study the Ca^{2+} turnover in skinned muscle fibers, 1640

V

van den Berg, P. A. W., van Hoek, A., Walentas, C. D., Perham, R. N., and Visser, A. J. W. G. Flavin fluorescence dynamics and photoinduced electron transfer in *Escherichia coli* glutathione reductase, 2046
van den Engh, G. *See* Asbury and van den Engh
van der Vegte, E. W. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard
van der Werf, K. O. *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve
van Grondelle, R. *See* Pålsson, Flemming, Gobets, van Grondelle, Dekker, and Schlodder
van Hoek, A. *See* van den Berg, van Hoek, Walentas, Perham, and Visser
van Holde, K. *See* Leuba, Bustamante, van Holde, and Zlatanova
——— *See* Leuba, Bustamante, Zlatanova, and van Holde
——— *See* Zlatanova, Leuba, and van Holde

van Hulst, N. F. *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve

van Noort, S. J. T., van der Werf, K. O., Eker, A. P. M., Wyman, C., de Grooth, B. G., van Hulst, N. F., and Greve, J. Direct visualization of dynamic protein-DNA interactions with a dedicated atomic force microscope, 2840

van Zanten, J. H. *See* Korgel, van Zanten, and Monbouquette

Vassiliev, I. R., Jung, Y.-S., Yang, F., and Golbeck, J. H. PsaC subunit of photosystem I is oriented with iron-sulfur cluster F_B as the immediate electron donor to ferredoxin and flavodoxin, 2029

Vénien-Bryan, C., Lenne, P.-F., Zakri, C., Renault, A., Brisson, A., Legrand, J.-F., and Berge, B. Characterization of the growth of 2D protein crystals on a lipid monolayer by ellipsometry and rigidity measurements coupled to electron microscopy, 2649

Venturoli, G., Drepper, F., Williams, J. C., Allen, J., Lin, X., and Mathis, P. Effects of temperature and ΔG° on electron transfer from cytochrome c_2 to the photosynthetic reaction center of the purple bacterium *Rhodobacter sphaeroides*, 3226

Vereb, G., Jares-Erijman, E., Selvin, P. R., and Jovin, T. M. Temporally and spectrally resolved imaging microscopy of lanthanide chelates, 2210

Verhoeven, A. J. *See* Sijtsema, Otto, Segers-Nolten, Verhoeven, and Greve

Verkman, A. S. *See* Carter, Ölveczky, Matthay, and Verkman

——— *See* Kneen, Farinas, Li, and Verkman

——— *See* Ölveczky and Verkman

Vinckier, A., Gervasoni, P., Zaugg, F., Ziegler, U., Lindner, P., Groscurth, P., Plückthun, A., and Semenza, G. Atomic force microscopy detects changes in the interaction forces between GroEL and substrate proteins, 3256

Visser, A. J. W. G. *See* van den Berg, van Hoek, Walentas, Perham, and Visser

Vogel, V. *See* Frey, Brink, Schief, Chiu, and Vogel

Vold, R. R. *See* Prosser, Hwang, and Vold

Volkov, A. G. *See* Paula, Volkov, and Deamer

Vykoukal, J. *See* Wang, Vykoukal, Becker, and Gascoyne

W

Wade, R. C. *See* Ibragimova and Wade

Walentas, C. D. *See* van den Berg, van Hoek, Walentas, Perham, and Visser

Wallace, D. *See* Tomich, Wallace, Henderson, Mitchell, Radke, Brandt, Ambler, Scott, Grantham, Sullivan, and Iwamoto

Wallraff, E. *See* Simson, Wallraff, Faix, Niewöhner, Gerisch, and Sackmann

Walsh, F. S. *See* Simson, Yang, Moore, Doherty, Walsh, and Jacobson

Walz, J. *See* Denkov, Yoshimura, Kouyama, Walz, and Nagayama

Wanaski, S. *See* Denisov, Wanaski, Luan, Glaser, and McLaughlin

Wang, A. *See* Baskakov, Wang, and Bolen

Wang, H., Planchart, A., and Stubbs, G. Caspar carboxylates: the structural basis of tobamovirus disassembly, 633

Wang, H.-Y., Elston, T., Mogilner, A., and Oster, G. Force generation in RNA polymerase, 1186

Wang, X.-B., Vykoukal, J., Becker, F. F., and Gascoyne, P. R. C. Separation of polystyrene microbeads using dielectrophoretic/gravitational field-flow fractionation, 2689

Wanke, E. *See* Magistretti, Mantegazza, de Curtis, and Wanke

Ward, M. D. *See* Yip, Brader, DeFelippis, and Ward

Warshel, A. *See* Parson, Chu, and Warshel

——— *See* Sham, Muegge, and Warshel

Watowich, S. J. *See* Bhyravbhatla, Watowich, and Caspar

Waugh, R. E. *See* Tsai, Waugh, and Keng

Way, M. *See* McGough, Chiu, and Way

Weaver, J. C. *See* Chizmadzhev, Indenbom, Kuzmin, Galichenko, Weaver, and Potts

Webb, M. R. *See* Barman, Brune, Lionne, Piroddi, Poggesi, Stehle, Tesi, Travers, and Webb

Weber, C. *See* Uttenweiler, Weber, and Fink

Wei, M.-d. *See* Zhang, Davidson, Wei, and Loew

Weiger, T. M., Langer, T., and Hermann, A. External action of di- and polyamines on maxi calcium-activated potassium channels: an electrophysiological and molecular modeling study, 722

Weinstein, H. *See* Pardo, Pastor, and Weinstein

——— *See* Wriggers, Mehler, Pitici, Weinstein, and Schulten

Weisberg, A. *See* Zhang, Weisberg, and Horowits

Welfle, H. *See* Krafft, Hinrichs, Orth, Saenger, and Welfle

Wessels, J. G. H. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard

White, S. H. *See* Hristova and White

Wiggins, C. H., Riveline, D., Ott, A., and Goldstein, R. E. Trapping and wiggling: elastohydrodynamics of driven microfilaments, 1043

Wilczynska, M. *See* Karolin, Fa, Wilczynska, Ny, and Johansson

Williams, A. J. *See* Kermode, Williams, and Sitsapesan

Williams, J. C. *See* Venturoli, Drepper, Williams, Allen, Lin, and Mathis

Williams, T. D. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier

Willson, R. C. *See* Xavier and Willson

Winslow, R. L. *See* Jafri, Rice, and Winslow

Wolfe, J. *See* Yoon, Pope, and Wolfe

Wong, T. C. *See* Gao and Wong

Woolf, T. B. Molecular dynamics simulations of individual α-helices of bacteriorhodopsin in dimyristoylphosphatidylcholine. II. Interaction energy analysis, 115

——— Simulations of fatty acid-binding proteins suggest sites important for function. I. Stearic acid, 681

——— **and Tychko, M.** Simulations of fatty acid-binding proteins. II. Sites for discrimination of monounsaturated ligands, 694

Worthman, L. A. D. *See* Nag, Perez-Gil, Ruano, Worthman, Stewart, Casals, and Keough

Worthman, L.-A. *See* Ruano, Nag, Worthman, Casals, Pérez-Gil, and Keough

Wösten, H. A. B. *See* de Vocht, Scholtmeijer, van der Vegte, de Vries, Sonveaux, Wösten, Ruysschaert, Hadziioannou, Wessels, and Robillard

Wraight, C. A. *See* McMahon, Müller, Wraight, and Nienhaus

Wriggers, W., Mehler, E., Pitici, F., Weinstein, H., and Schulten, K. Structure and dynamics of calmodulin in solution, 1622

Wu, F., Gericke, A., Flach, C. R., Mealy, T. R., Seaton, B. A., and Mendelsohn, R. Domain structure and molecular conformation in annexin V/1,2-dimyristoyl-*sn*-glycero-3-phosphate/Ca^{2+} aqueous monolayers: a Brewster angle microscopy/infrared reflection-adsorption spectroscopy study, 3273

Wu, J.-L. *See* Luo, Wu, Gergely, and Tao

Wu, L.-G. and Betz, W. J. Kinetics of synaptic depression and vesicle recycling after tetanic stimulation of frog motor nerve terminals, 3003

Wyman, C. *See* van Noort, van der Werf, Eker, Wyman, de Grooth, van Hulst, and Greve

X

Xavier, K. A. and Willson, R. C. Association and dissociation kinetics of anti-hen egg lysozyme monoclonal antibodies HyHEL-5 and HyHEL-10, 2036

Xia, P., Bungay, P. M., Gibson, C. C., Kovbasnjuk, O. N., and Spring, K. R. Diffusion coefficients in the lateral intercellular spaces of Madin-Darby canine kidney cell epithelium determined with caged compounds, 3302

Xu, J., Schwarz, W. H., Käs, J. A., Stossel, T. P., Janmey, P. A., and Pollard, T. D. Mechanical properties of actin filament networks depend on preparation, polymerization conditions, and storage of actin monomers, 2731

Xu, S., Yu, L. C., and Schoenberg, M. Behavior of *N*-phenylmaleimide-reacted muscle fibers in magnesium-free rigor solution, 1110

——— *See* Frisbie, Xu, Chalovich, and Yu

Xue, Y. *See* Yang, Hon, Bubanko, Xue, Seetharaman, Hew, and Sicheri

Y

Yamamoto, S. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno

Yamashita, I. *See* Hasegawa, Yamashita, and Namba

Yamazato, M. *See* Koroyasu, Yamazato, Hirano, and Aizawa

Yang, B. *See* Simson, Yang, Moore, Doherty, Walsh, and Jacobson

Yang, D. S. C., Hon, W.-C., Bubanko, S., Xue, Y., Seetharaman, J., Hew, C. L., and Sicheri, F. Identification of the ice-binding surface on a type III antifreeze protein with a "flatness function" algorithm, 2142

Yang, F. *See* Vassiliev, Jung, Yang, and Golbeck

Yang, P., Tameyasu, T., and Pollack, G. H. Stepwise dynamics of connecting filaments measured in single myofibrillar sarcomeres, 1473

Yao, Y. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier

Yau, K.-W. *See* Finn, Krautwurst, Schroeder, Chen, Reed, and Yau

Ye, B. *See* Zhou, Gong, Ye, Fan, Makielski, Robertson, and January

Yin, D. H. *See* Gao, Yin, Yao, Sun, Qin, Schöneich, Williams, and Squier

Yip, C. M., Brader, M. L., DeFelippis, M. R., and Ward, M. D. Atomic force microscopy of crystalline insulins: the influence of sequence variation on crystallization and interfacial structure, 2199

Yoon, Y. H., Pope, J. M., and Wolfe, J. The effects of solutes on the freezing properties of and hydration forces in lipid lamellar phases, 1949

Yoshida, K., Yoshimoto, M., Sasaki, K., Ohnishi, T., Ushiki, T., Hitomi, J., Yamamoto, S., and Sigeno, M. Fabrication of a new substrate for atomic force microscopic observation of DNA molecules using the ultrasmooth sapphire plate, 1654

Yoshimoto, M. *See* Yoshida, Yoshimoto, Sasaki, Ohnishi, Ushiki, Hitomi, Yamamoto, and Sigeno

Yoshimura, H. *See* Denkov, Yoshimura, Kouyama, Walz, and Nagayama

Yoshioka, T. *See* Zohar, Ikeda, Shinagawa, Inoue, Nakamura, Elbaum, Alkon, and Yoshioka

Yu, B. and Caspar, D. L. D. Structure of cubic insulin crystals in glucose solutions, 616

Yu, H. *See* Ma, Koppenol, Yu, and Zografi

Yu, L. C. *See* Frisbie, Xu, Chalovich, and Yu

——— *See* Xu, Yu, and Schoenberg

Z

Zakri, C. *See* Vénien-Bryan, Lenne, Zakri, Renault, Brisson, Legrand, and Berge

Zarytova, V. *See* Malinina, Tereshko, Ivanova, Subirana, Zarytova, and Nekrasov

Zasloff, M. *See* Bechinger, Zasloff, and Opella

Zaugg, F. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza

Zemb, T. *See* Cantù, Corti, Del Favero, Dubois, and Zemb

Zhang, J. Q., Weisberg, A., and Horowits, R. Expression and purification of large nebulin fragments and their interaction with actin, 349

Zhang, J., Davidson, R. M., Wei, M.-d., and Loew, L. M. Membrane electric properties by combined patch clamp and fluorescence ratio imaging in single neurons, 48

Zhang, R., Itri, R., and Caffrey, M. Membrane structure characterization using variable-period x-ray standing waves, 1924

Zhong, Q., Jiang, Q., Moore, P. B., Newns, D. M., and Klein, M. L. Molecular dynamics simulation of a synthetic ion channel, 3

Zhorov, B. S. *See* Tikhonov and Zhorov

Zhou, M.-J. *See* Kindzelskii, Zhou, Haugland, Boxer, and Petty

Zhou, Z. H., Chiu, W., Haskell, K., Spears, H., Jr., Jakana, J., Rixon, F. J., and Scott, L. R. Refinement of herpesvirus B-capsid structure on parallel supercomputers, 576

Zhou, Z., Gong, Q., Ye, B., Fan, Z., Makielski, J. C., Robertson, G. A., and January, C. T. Properties of HERG channels stably expressed in HEK 293 cells studied at physiological temperature, 230

Zhou, Z. and January, C. T. Both T- and L-type Ca^{2+} channels can contribute to excitation-contraction coupling in cardiac Purkinje cells, 1830

Zhu, C. *See* Piper, Swerlick, and Zhu

Ziegler, U. *See* Vinckier, Gervasoni, Zaugg, Ziegler, Lindner, Groscurth, Plückthun, and Semenza

Ziemann, F. *See* Simson, Ziemann, Strigl, and Merkel

Zillig, W. *See* Grimm, Singh, Rachel, Typke, Zillig, and Baumeister

Zimmerberg, J. *See* Ratinov, Plonsky, and Zimmerberg

Zimmermann, U. *See* Kürschner, Nielsen, Andersen, Sukhorukov, Schenk, Benz, and Zimmermann

Zlatanova, J., Leuba, S. H., and van Holde, K. Chromatin fiber structure: morphology, molecular determinants, structural transitions, 2554

——— *See* Leuba, Bustamante, van Holde, and Zlatanova

——— *See* Leuba, Bustamante, Zlatanova, and van Holde

Zografi, G. *See* Ma, Koppenol, Yu, and Zografi

Zohar, O., Ikeda, M., Shinagawa, H., Inoue, H., Nakamura, H., Elbaum, D., Alkon, D. L., and Yoshioka, T. Thermal imaging of receptor-activated heat production in single cells, 82

SUBJECT INDEX

A

Aβ. *see* Amyloid β
Absorption spectra, nucleic acids, application of deVoe theory, 2249
Acetylcholine receptors
heat production activated by, in single cells, 82
nicotinic, model of ion channel, 242
voltage-independent inhibition and pore-lining region of, 2306
AChR. *see* Acetylcholine receptors
ACTH. *see* Adrenocorticotropin hormone
Actin
binding sites, compliance and cross-bridges, muscle filaments, 1611
elastohydrodynamics of driven microfilaments, 1043
interactions with large nebulin fragments, 349
mechanical properties of filament networks of, 2731
monomeric, Ca-Mg exchange and small domain of, 2474
myosin heads bound to, and skeletal muscle stiffness in contraction, 2459
target zones in insect flight muscle, active cross-bridges bind to, X-ray diffraction, 1439
G-Actin, transglutaminase-induced cross-linking between myosin S1 and, 953
Action potential, models of, mechanism of anode break stimulation in heart, 1850
Active sites, enzyme, movement in, triosephophate isomerase, 72
Actomyosin
phosphate depletion and, contractile cycle, active muscle fibers, 369
recycling rate, calcium regulation of tension redevelopment kinetics, 2005
Acyl chains
length, asymmetry and in-plane elasticity of PCs, 338
polyunsaturated, order and dynamics of, phospholipids, 879
Adamantane, amino derivatives, two blocking sites in open NMDA channels, 1305
Adenosine diphosphate, interactions with ryanodine receptor, 1296
Adenosine triphosphatase, shortening rates in frog fast skeletal myofibrils and, 3120
Adenosine triphosphate
analogs of
effect on posthydrolytic and force development steps, muscle fibers, 3059
kinetics of NTP binding and hydrolysis in muscle contraction, 3044
calcium regulation of tension redevelopment kinetics with, skeletal muscle, 2005
concentration jumps from DMB-caged ATP, Na,K-ATPase fast transient currents induced by, 2285
inhibition and rectification of calcium-activated anion channel in SR by, 2335
interactions with ryanodine receptor, 1296
transport through VDAC studied by current fluctuation analysis, 2365
Adhesion
bacterial pili, assembly of, 623
cell, and 2D receptor-ligand affinity, 492
energy of, *Dictyostelium discoideum,* 514
lipids in a phospholipid membrane, MD simulations, 931
ADP. *see* Adenosine diphosphate
Adrenocorticotropin hormone peptides, in membrane mimics, NMR studies of, 1871
AFP. *see* Antifreeze protein
Aggregates, of porphyrin and chlorophyll *a,* depolarized resonance light scattering, 2089
Alamethicin, backbone dynamics of, 138
Albumin, bovine serum, phase behavior of mixtures of rods and spheres, 669
***n*-Alkanes,** effects on phospholipid hexagonal phases, 944
Aluminum phthalocyanine tetrasulfonate, in MCF-10F, a hole burning study, 2680
Alzheimer's disease, structural analysis of β(1–40) amyloid, 537
AMFE. *see* Anomalous mole fraction effect
Amines, action on BK channels, 722
Amperometry, chromaffin cell secretory responses measured by membrane capacitance and, 2100
Amplifiers, patch clamp, voltage distortion by, 831
Amyloid, β(1–40), structural analysis of, Alzheimer's disease, 537
1-Anilino-8-naphthalene sulfonate anion, ion pairs and protein binding, 422
Anion channels. *see also* Ion channels
calcium-activated, ATP and, SR, 2335
Anions
binding as probe of pore, CFTR, 1320
halide, permeation through phospholipid bilayers, 319
Annexin V, anionic DMPA monolayers with, 3273
Anode break stimulation, mechanism of, in heart, 1850
Anomalous mole fraction effect, in ion channels, 2327
ANS. *see* 1-Anilino-8-naphthalene sulfonate
Antifreeze proteins, bind independently to ice, 1502
Antifreeze protein type III, ice-binding surface identified with "flatness function" algorithm, 2142
Appendages, in electrical properties of skin, 843
APT. *see* Aluminum phthalocyanine tetrasulfonate
Atomic force microscopy
crystalline insulins, 2199
fibrous long spacing collagen ultrastructure by, 3211
interaction forces of GroEL with substrate proteins, 3256
membrane skeleton structure, erythrocytes, 2171
new substrate for DNA observations, 1654
phospholipid bilayer degradation by PLA_2, 2398
phospholipid domains detected by, 2443
protein-DNA interactions, 2840
relative microelastic mapping by, living cells, 1564
surface morphology and surface forces of protein A adsorbed on mica, 455
ATP. *see* Adenosine triphosphate
Authors, instructions to, 679

B

Bacillus stearothermophilus, G3PD, tyrosine quenching of tryptophan phosphorescence in, 3165
Backbone dynamics, alamethicin and melittin, 138
Back focal plane interferometry, 2D tracking of ncd motility by, 1074
Bacteria
free swimming, sensing of stimulus gradients by, 2272
Gram-negative, tetracycline resistance of, 63
non-genetic individuality, 175
Bacteriophage, P22 in procapsid size determination, 559
Bacteriorhodopsin
α-helices of, MD simulations of, interaction energy analysis, 115
mechanism of vesicle formation, electron cryomicroscopy, 1409
voltage dependent-proton pumping, 403

voltage sensitive spectroscopic intermediate, 1
Barium, block of maxi-K channel, human vas deferens epithelial cells, 199
Base stacking, solvent influence on, 394
B cells, mouse, electroporative dye uptake by, 98
BD simulation. *see* Brownian dynamics simulations
Bending modulus, *Dictyostelium discoideum*, 514
BFP interferometry. *see* Back focal plane interferometry
Bilayers. *see* Lipid bilayers
Binding
anion, as probe of pore, CFTR, 1320
counterions to DNA, competition study, 964
2D receptor-ligand affinity measured by centrifugation, 492
electrostatic, membrane, of basic peptides, 731
electrostatics and, in ion channels, AMFE, 2327
by forming ion pairs, ANS anion to proteins, 422
kinetics of, mabs HyHEL-5 and HyHEL-10 to HEL, 2036
ligand, theory for rebinding at cell membrane surfaces, 1215
membrane, of basic peptides and lateral domains enriched in phosphatidylinositol 4,5-bisphosphate, 731
Biomolecular systems, MD simulations in, 2744
Birefringence
of single and bundled microtubules, 645
tubulin and high magnetic force fields, 1509
BK channels
amine action on, 722
inactivating, characterization of, 268
Blood, red cells, low frequency electroporation of, 2114
Blood flow, optimization principle and vascular morphology, 109
Blood vessels, morphology, optimization principle and, 109
Book reviews, *Liposomes in Gene Delivery*, 2138
bR. *see* Bacteriorhodopsin
Brownian dynamics simulations
dynamics and curvature of linear DNA molecules, 773
ion transport in vestibule of membrane channels, 37
program for linear and circular DNA, 780
Brownian ratchet model, mitochondrial precursor protein import and, 1732
B states, CO, photodissociation in myoglobin, 789

C

Calcium
cardiac, dynamics of, model, 1149
chloride channels activated by, spatial distribution of, *Xenopus* oocytes, 1286
effect on shortening velocity, skeletal muscle, 1452
exchange with Mg, effect on small domain of monomeric actin, 2474
force regulation by, frog myocytes, 1994
fractional current in NMDA channel pore mutants, voltage dependence of, 1790
luminal, effect on CRC activity of SR in situ, 1795
mitochondrial, in relaxed and tetanized myocardium, 1579
oscillations in concentration, IP_3 levels during, 523
presynaptic currents, optical measurement of, 1549
release, and luminal pH changes in SR, 290
release flux, determination from calcium transients in muscle, 1694
SR anion channel activated by, ATP affect on, 2335
and tension redevelopment kinetics, skeletal muscle, 2005
turnover in skinned muscle fibers, 1640
in ventricular cell during excitation-contraction cycle, 153
Calcium-ATPase, plasma membrane, halothane binding to, fluorescence spectroscopy, 974
Calcium channels
ryanodine-sensitive, redox state modifies calcium dependence of, 1263
T- and L-, contributions to E-C coupling, Purkinje cells, 1830
Calcium release channel, activity of SR in situ, and luminal calcium, 1795
Calmodulin
loss of conformational stability upon methionine oxidation, 1115
solution dynamics of, 1622
Canine parvovirus, capsid, promiscuity, plasticity and quasi-equivalence, 639
Capacitance, membrane, chromaffin cell secretory responses measured by amperometry and, 2100
Capillary mixing method, continuous-flow, reaction kinetics monitored on microsecond time scale by, 2714
Capping, gelsolin binding site on F-actin and, 764
Capsids
CPV, promiscuity, plasticity and quasi-equivalence, 639
HBV, refinement of structure on parallel supercomputers, 576
Carbohydrate chains, conformation of, ganglioside G_{M1}, 309
Carbonic anhydrase III, intramolecular proton transfer in, 3182
Carbon monoxide, simulation of photodissociation in myoglobin, 789
Carboxylates, Caspar, structural basis of TMV disassembly, 633
Cardiac cells, deexcitation of, 2850
Cardiac cycle, calcium and movement during, ventricular cells, 153
Caspar, Don, contributions of, 534
Catenanes, characteristics of, applied to DNA replication, 2815
Cation channels. *see also* Ion channels
cyclic-nucleotide-activated nonselective, assembly of, 1333
Cations
divalent
effects on E-4031-sensitive repolarization current, 1278
formation of giant liposomes promoted by, 2973
small, mobile, multivalent, DNA bending by, 3152
Centrifugation. *see also* Ultracentrifugation
used to measure 2D receptor-ligand affinity, 492
CFTR. *see* Cystic fibrosis transmembrane conductance regulator
Channels. *see* Specific type of channel
Charge-charge interactions, protein relaxation and, 1744
Charge separation, in photosystem I, 2611
Chelates, lanthanide, microscopy of, 2210
Chemoattractants, chemotatic pattern formation and, bacteria, 1677
Chemotaxis. *see also* Locomotion; Migration
non-genetic individuality in swimming behavior, bacteria, 175
pattern formation, physical mechanisms for, bacteria, 1677
quasi- and non-equivalence in bacterial flagellar filaments, 569
Chloride channels
calcium activated, spatial distribution of, *Xenopus* oocytes, 1286
solubilization of channel forming peptides, 256
Chloroflexus aurantiacus, energy transfers in the B808–866 antenna, 2069
Chlorophyll *a,* depolarized resonance light scattering by aggregates of, 2089
Cholesterol
behavior of POPE mixture with, NMR and infrared spectroscopy, 899
lateral distribution in lipid bilayers, pressure effects on, 1864
motion of, and location in the H_{II} phase, 892
sterically stabilized vesicles based on conjugates of, 3198
Chromaffin cells
rat, heteromultimeric BK channels, 268
secretory responses of, 2100
Chromatin
linker histones and histone H3 in structure, SFM, 2823
redundancy of linker histone tails and N-tails of histone H3 in, 2830
structure of fibers, 2554

Chromophores, depolarized resonance light scattering by aggregates of, 2089
Cilia, *Paramecium,* computation of internal forces in, 1658
C-K_4M2GlyR peptides, solubilization of, 256
Clathrin, membranes coated with, spontaneous-curvature theory of, 2862
CO. *see* Carbon monoxide
Coat proteins, TMV
  atomic model of four-layer aggregate, 604
  3D structure of stacked disk aggregate, 595
Cobalt (III) hexaammine, plasmid DNA condensation by, and TRS insertion, 1484
Coiled-coil, site-specific thermodynamics and kinetics of transition, spin inversion-transfer NMR, 3190
Colchicine, effects on mechanical behavior of neutrophils, 3282
Collagen, fibrous long spacing, ultrastructure by AFM, 3211
Compliance, and cross-bridges, muscle filaments, 1611
Conductance, voltage sensitivity of crayfish glutamate channels, 1767
Contraction
  active muscle fibers, phosphate and actomyosin during cycle, 369
  calcium on shortening velocity and, skeletal muscle fibers, 1452
  muscle, kinetics of NTP binding and hydrolysis in, 3044
  muscle filaments, compliance and cross-bridges, 1611
Core structure, hydrocarbon, determined by X-ray diffraction, DOPC bilayers, 2419
Corneas
  developing chick, synchrotron X-ray diffraction study of, 995
  non-steady state diffusion of hydrogen-bicarbonate ion pair, 475
Cortexillins, bending modulus and adhesion energy of *Dictyostelium* lacking, 514
Cotransport, validity of reduced models of, 816
Counterions, binding to DNA, competition study, 964
CPV. *see* Canine parvovirus
CRC. *see* Calcium release channel
Cross-bridges
  active, bind to actin target zones in insect flight muscle, X-ray diffraction, 1439
  active muscle fibers, phosphate and actomyosin in contractile cycle, 369
  and compliance, muscle filaments, 1611
  NPM-reacted, behavior in Mg-free rigor solution, 1110
  in presence of MgAMP-PNP, permeabilized psoas muscle, 3072
Cross-linking, transglutaminase-induced, between G-actin and myosin S1, 953
Crystallization, method, membrane localization of potassium channels, 2159
Crystals
  AFM of insulins, 2199
  deoxyhemoglobin S, 655
  protein, on lipid monolayers, ellipsometry and rigidity measurements, 2649
  streptavidin, coordinated to metal chelated lipid monolayers, 2674
Crystal water, dynamics of, low frequency Raman spectra of lysozyme crystals, 1533
Current fluctuation analysis, ATP transport through voltage-dependent mitochondrial ion channel studied by, 2365
Curve resolution, multivariate, in protein folding, 2876
Cys^{133}, localization using resonance energy transfer, troponin I, 3111
Cystic fibrosis transmembrane conductance regulator, anion binding as probe of pore, 1320
Cytochrome b_{558}, Raman microspectroscopy of, neutrophilic granulocytes, 3250
Cytochrome *c*
  films, molecular orientation in, 999
  low temperature electron transfer to special pair, *Rps. viridis,* 1135
  porphyrin macrocycle conformation in hemoproteins, 753
Cytochrome c_2, electron transfer to PRC of *R. sphaeroides,* 3226
Cytochrome c_3, free energy calculations in, 1708
Cytochrome *c*/cytochrome oxidase complex, vectorially oriented monolayers of, 1346
Cytochrome *c* oxidase, *Paracoccus denitrificans,* electrostatic calculations on, 708
Cytochrome P450 BM3, fatty acid-induced alteration of porphyrin macrocycle of, 3241

D

Deexcitation, of cardiac cells, 2850
DEG/G-FFF. *see* Dielectrophoretic/Gravitational field-flow-fractionation
Deoxyguanosine 5′-monophosphate, interactions between guanosine helices in salt solutions, 430
Deoxyhemoglobin S, double strands, stability of, 655
Deoxyribonucleic acid. *see* DNA
Desulfovibrio vulgaris, free energy calculations in cytochrome c_3 from, 1708
Development, chick corneas, synchrotron X-ray diffraction study of, 995
DeVoe theory, application to VCD, absorption and linear dichroism spectra, nucleic acids, 2249
D4G. *see* 2′,3′-dideoxy-2′,3′-didehydroguanine nucleoside
Dictyostelium discoideum, bending modulus and adhesion energy, 514
Dielectric constants
  influence of solvents on base stacking, 394
  protein, and protein relaxation, 1744
Dielectrophoretic/Gravitational field-flow-fractionation, separation of polystyrene microbeads using, 2689
Diffusion
  coupled bulk and boundary layer, towards ion channels, far-field analysis of, 2235
  glucose in isolated islet of Langerhans, 1722
  lateral, of neutral lipids, 857
  lateral mobility of NCAM, 297
  non-steady state, in multilayered tissues, 475
  three dimensional obstructed, Monte Carlo analysis of, 2722
  transport through spherical interface probed by PFG NMR, 2259
Diffusion coefficients
  lateral, of ubiquinones and plastoquinones in model bilayers, 1937
  in lateral intercellular spaces of MDCK cells, 3302
Dimethylsulfoxide, effects on hydration forces and freezing properties of lipid lamellar phases, 1949
Dimyristoylphosphatidylcholine, bacteriorhodopsin α-helices in, MD simulations of, 115
Dioctadecadienoylphosphatidylcholine, hydration of, in lamellar phase, 1908
Dipalmitoylphosphatidylcholine
  adsorbed on silica beads, lateral diffusion, melittin and, 857
  monolayer, partitioning of SP-A into, 1101
Dipalmitoylphosphatidylcholine/dipalmitoylphosphatidylglycerol, monolayer, partitioning of SP-A into, 1101
Disassembly, viral, structural basis of, TMV, 633
Disk aggregate, stacked
  3D structure of, TMV, 595
  TMV, atomic model of, 604
Distances, intramolecular, in proteins, 11
Distortion, voltage, by patch clamp amplifiers, 831
DMPC. *see* Dimyristoylphosphatidylcholine
DMSO. *see* Dimethylsulfoxide
DNA

bending, changes in torsion angle of glycosyl bond, 2191
bending by small, mobile multivalent cations, 3152
characteristics of catenanes applied to replication of, 2815
circular
effects of supercoiling in electrophoretic trapping, PAGE, 3140
protein-constrained, modeling chain folding in, 2491
counterion binding to, competition study, 964
dynamics of N*lac*-P, 413
elasticity theory of B to S transformation, 132
elastic rod model for, and DNA minicircle structure, 2515
interactions with proteins, AFM, 2840
linear and circular, BD program for, 780
linear molecules, looping dynamics and curvature, 773
measurements of twist elasticity, 2501
miniplasmids, thermal fluctuations in, 2545
models of dynamics, 2504
motion of RNA polymerase along, stochastic model of, 1169
new substrate for AFM observations, 1654
operator, interaction with Tet repressor, 63
plasmid, cobalt (III) hexaammine condensation, TRS insertion, 1484
precipitation by polyamines, 381
supercoiled, behavior of, 2016
trapping in nonuniform oscillating electric fields, 1024
triplexes, EM and AFM of, 1015
twisting of molecules, 1609
Dodecyl maltoside, mixtures with lipids, gel-like phase in, 919
DODPC. *see* Dioctadecadienoylphosphatidylcholine
DOM. *see* Dodecyl maltoside
DPPC. *see* Dipalmitoylphosphatidylcholine
Drag forces, due to adherent leukocytes, postcapillary vessels, 3292
D spacing, substrate roughness and resolution of the vapor pressure paradox, 1421

E

E-4031, repolarization current sensitive to, divalent cations and, 1278
Elasticity
in-plane, of saturated, mixed chain PCs, 338
of membranes, gramicidin channel kinetics under tension, 328
twist, measurements of, DNA, 2501
Elasticity theory, of B- to S-DNA transformation, 132
Elastic rod model, for DNA, and DNA minicircle structure, 2515
Elastohydrodynamics, driven microfilaments, 1043
Elecromechanical coupling, model of gating by mechanical force, *E. coli* MscL, 2889
Electrical activity pattern, ion channels, 2745
Electric field pulse, cell membrane permeabilization induced by, fusogenicity and, 1889
Electric fields
importance of distribution, for tissue electroporation, 2152
nonuniform oscillating, use in DNA trapping, 1024
Electron cryomicroscopy, mechanism of bR vesicle formation, 1409
Electron transfer
cytochrome c_2, to PRC of *R. sphaeroides,* 3226
low temperature, from cytochrome *c* in *Rps. viridis,* 1135
Paracoccus denitrificans cytochrome *c* oxidase, 708
PRCs, 2567
reorganization energies calculated using finite difference PB model, 1241
Electrophoresis, gel, study of divalent counterion binding to DNA, 964
Electrophoretic trapping, circular DNA, effects of supercoiling, PAGE, 3140
Electroporation
and dye uptake, mouse B cells, 98
low frequency, of fixed red blood cells, 2114
low voltage, of skin, and iontophoresis, 679
tissues, electric field distribution for, 2152
Electrorotation studies, of lipophilic ion interaction with plasma membrane, 3031
Electrostatics
and binding in ion channels, AMFE, 2327
calculations on *Paracoccus denitrificans* cytochrome *c* oxidase, 708
continuum model, iron release from transferrin investigated using, 2747
membrane binding of basic peptides, 731
Ellipsometry, protein crystal growth on lipid monolayers characterized by, 2649
Embryonic tissues, living, viscoelastic properties of, 2227
Enantioselectivity, modeling of, lipase-catalyzed reactions, 1251
Energy migration, donor-donor, and intramolecular distances in proteins, 11
Energy transfer
in the B808–866 antenna, *Chloroflexus aurantiacus,* 2069
fluorescence resonance, by fluorescence microscopy, 2702
in photosystem I, 2611
triplet, and protein modifications, bacterial PRCs, 2623
Enthalpy, receptor-activated heat production in single cells, 82
Epithelial cells, human vas deferens, internal barium block of maxi-K channels, 199
Erythrocytes
low frequency electroporation of, 2114
membrane skeleton structure observed by AFN, 2171
Escherichia coli
assembly of bacterial adhesion pili, 623
chemotactic pattern formation by, 1677
MscL, EMC model of gating by mechanical force, 2889
Excitation-contraction coupling, Purkinje cells, and T- and L-type calcium channels, 1830
Excitation-contraction cycle, cardiac cells, calcium movement during, 153
Exocytosis, regulation of fusion by cell inflation, 1061
Extrusion pressure, effect on lipid vesicles, 2996

F

FABP. *see* Fatty acid-binding proteins
F-actin, gelsolin binding site on, 764
Far-field analysis, coupled bulk and boundary layer diffusion towards ion channels, 2235
Fatty acid-binding proteins
MD simulations of interactions with stearic acid, 681
MD simulations of monounsaturated ligands in, 694
Fatty acids, porphyrin macrocycle of cytochrome P450 BM3 and, 3241
Ferredoxin, PsaC and iron-sulfur cluster F_B as electron donor to, 2029
***Ff* filamentous virus,** orientations of Tyr21 and 24 in coat subunits of, 3217
Fibrils, tubular, structural analysis of Aβ(1–40), 537
Filaments, actin networks of, mechanical properties, 2731
Films, at air-water interface, lung surfactant phase transitions in, 2983
Finite-element solutions, Lamm equation, fitting sedimentation velocity data to, 444
Flagellar filaments, bacterial, quasi- and nonequivalence in, 569
Flagellar hook, *Salmonella typhimurium,* kinetic analysis of growth rate, 436
"Flatness function" algorithm, AFP type III ice-binding surface identified with, 2142

Flavin, fluorescence dynamics and *E. coli* GR, 2046
Flavodoxin, PsaC and iron-sulfur cluster F_B as electron donor to, 2029
***FliK* gene,** and growth rate of *Salmonella typhimurium* flagellar hook, 436
Flow FFF. *see* Flow field-flow fractionation
Flow field-flow fractionation, vesicle size distributions measured by, 3264
Flow resistance, due to adherent leukocytes, postcapillary vessels, 3292
Fluid membrane, model, thermally induced pores in, 1754
Fluid shear stress, optimization principle and vascular morphology, 109
Fluorescence, pleural surface, microvascular water permeability measured by, 2121
Fluorescence dynamics, flavin, photoinduced electron transfer in *E. coli* GR, 2046
Fluorescence imaging, calcium turnover in skinned muscle fibers, 1640
Fluorescence microscopy
FRET measurements by, 2702
of lanthanide chelates, 2210
Fluorescence polarization
transients from rhodamine isomers on myosin RLC, 3093
using IART isomers, myosin RLC orientation studied by, 3083
Fluorescence ratio imaging, combined with patch clamps, analysis of membrane electric properties, 48
Fluorescence resonance energy transfer, measurements by fluorescence microscopy, 2702
Fluorescence spectroscopy
donor-donor energy migration and intramolecular distances in proteins, 11
plasma membrane, halothane binding to calcium-ATPase, 974
time-resolved, pressure effects on cholesterol distribution in bilayers, 1864
Folding
affected by molecular dipoles, amphiphilic peptides, 2434
chain, modeling in circular, protein-constrained DNA, 2491
protein, multivariate curve resolution and intermediate structures in, 2876
Force development, ATP analogs on posthydrolytic steps and, muscle fibers, 3059
Force generation, in RNA polymerase, 1186
Förster mechanism, use in determining intermolecular distances, proteins, 11
Fourier transform infrared spectroscopy, stability of transmembrane helices, 988
Free energy, membrane deformations, 1966
Freezing properties, effects of solutes on, in lipid lamellar phases, 1949
FRET. *see* Fluorescence resonance energy transfer
FTIR. *see* Fourier transform infrared spectroscopy
Fura-2, fluorescence imaging, calcium turnover in skinned muscle fibers, 1640
Fusion
exocytotic, regulation by cell inflation, 1061
influenza virus with liposomes, 55
Fusion pore conductance, experimental approaches and theoretical algorithms, 2374
Fusogenicity, electric field pulse-induced permeabilization and, cell membranes, 1889

G

Gangliosides
conformation of the G_{M1} oligosaccharide chain, 309
extrusion and occlusion of water in micelles, 3010
interaction with proteins, 1380
Gating
EMC model of, *E. coli* MscL, 2889
of I_{sK}, *Xenopus* oocytes, 2299
VDAC sensor regions translocation during, 2926
voltage-dependent, KAT1 N-terminus control of, 2953
voltage-sensitive ion channel, nonequilibrium response spectroscopy, 210
Gelsolin, binding site on F-actin, 764
Gene therapy, predicting effectiveness of peptide-based gene delivery systems for, 2802
Gene transfer, osmotic pressure control of voltage-induced permeabilization and, 3015
GFP. *see* Green fluorescent protein
Glucose
diffusion in islets, 1722
solutions of, cubic insulin crystals in, 616
D-Glucose, validity of reduced cotransport models, 816
Glutamate channels, crayfish, voltage sensitivity of, 1767
Glutathione reductase, *E. coli,* flavin fluorescence dynamics and photoinduced electron transfer in, 2046
Glyceraldehyde-3-phosphate dehydrogenase, *B. stearothermophilus,* tyrosine quenching of tryptophan phosphorescence in, 3165
Glycosyl bond, changes in torsion angle of, DNA bending, 2191
G3PD. *see* Glyceraldehyde-3-phosphate dehydrogenase
G-protein coupled receptors, roles of extracellular loops, 1087
GR. *see* Glutathione reductase
Gramicidin channels
kinetics under tension, 328
streaming potentials in, 2912
Gram-negative bacteria, assembly of bacterial adhesion pili, 623
Granulocytes, neutrophilic, Raman microspectroscopy of cytochrome b_{558} and myeloperoxidase, 3250
Green fluorescent protein, noninvasive intracellular pH indicator, 1591
GroEL, interaction forces with substrate proteins, measured by AFM, 3256
Growth, rate of, kinetic analysis, *Salmonella typhimurium* flagellar hook, 436
Guanosine, four stranded helices, interactions in concentrated salt solutions, 430

H

HA. *see* Hemagglutinin
Halide anions, permeation through phospholipid bilayers, 319
Halobacterium halobium, mechanism of bR vesicle formation, electron cryomicroscopy, 1409
Halobacterium salinarum, bR, regulation of voltage dependent-proton pumping, 403
Halothane, binding to plasma membrane calcium-ATPase, fluorescence spectroscopy, 974
HbS. *see* Hemoglobin S
Heart
calcium in ventricular cell during excitation-contraction, 153
deexcitation of cardiac cells, 2850
dynamics of cardiac calcium, model, 1149
force regulation by calcium, frog myocytes, 1994
inorganic phosphate interactions with ryanodine receptor, 1296
mechanism of anode break stimulation in, 1850
slow inactivation in human sodium channels, 2945
T- and L- type calcium channel contributions to E-C coupling, Purkinje cells, 1830
Heat, receptor-activated production, in single cells, 82
Heat shock protein 70, mitochondrial precursor protein import and, 1732
HEK 293 cells, HERG channels stably transfected in, 230
HEL. *see* Hen egg lysozyme

Helices
guanosine, interactions between, in concentrated salt solutions, 430
transmembrane, stability of, FTIR, 988
α-Helices, MD simulations of, bacteriorhodopsin in DMPC, 115
Helix-helix interactions, effect on stability of transmembrane helices, FTIR, 988
Hemagglutinin, morphology of, and influenza virus fusion with liposomes, 55
Hemoglobin, entropy-driven oxygenation steps in, 2638
Hemoglobin S, double strands, stability of, 655
Hemoproteins, conservation of porphyrin macrocycle conformation in, 753
Hen Egg Lysozyme, Mabs HyHEL-5 and HyHEL-10 to, binding kinetics of, 2036
HERG channels. *see* Human ether-a-go-go-related gene channels
stably transfected in HEK 293 cells, 230
Herpesvirus B, refinement of capsid structure on parallel supercomputers, 576
Histones
linker histones and histone H3 in chromatin structure, SFM, 2823
redundancy of linker histone tails and N-tails of histone H3 in chromatin, 2830
Hsp70. *see* Heat shock protein 70
Human ether-a-go-go-related gene channels, stably transfected in HEK 293 cells, 230
Hydration
of DODPC, in lamellar phase, 1908
effects of solutes on, in lipid lamellar phases, 1949
of polyethylene glycol-grafted liposomes, 1371
Hydrogen-bicarbonate ion pair, non-steady state diffusion of, cornea, 475
Hydrogen bonding, in alamethicin and melittin, MD simulations, 138
Hydrolysis, ATP analogs and posthydrolytic and force development steps, muscle fibers, 3059
Hydrophobic/hydrophilic interfaces, SC3 characterization after self-assembly at, 2059
Hydrophobic peptides, transmembrane migration in, lipid vesicles features modulating, 3023
Hydrophobins, SC3 characterization as monomer and after self-assembly at interfaces, 2059
HyHEL-5, binding kinetics of, 2036
HyHEL-10, binding kinetics of, 2036

I

Ice
AFP type III ice-binding surface identified with "flatness function" algorithm, 2142
antifreeze proteins binding to, 1502
cells embedded in, electron tomography of, *Pyrobaculum aerophilum,* 1031
Icosahedral particle, refinement of HBV capsid structure on parallel supercomputers, 576
Imaging. *see also* Specific methods
making movies of molecular motions, 2743
permeability transition pore in a single mitochondria, 2129
TMV, optical chemical imaging at 60nm resolution, 2076
Inactivation
C-type, of the potassium channel selectivity filter, 1840
Kv2.1, rat expressed in *Xenopus* oocytes, 1779
slow, in human cardiac sodium channels, 2945
Individuality, non-genetic, in swimming behavior, bacteria, 175
Inflation, cell, regulation of exocytotic fusion by, 1061
Influenza virus, fusion with liposomes and morphology of HA, 55
Infrared spectroscopy, hybrid bilayer membranes in air and water, 1388
***myo*-Inositol-1,4,5-trisphosphate,** levels, during calcium ion oscillations, 523
Instructions, to authors, 679
Insulins
crystalline, AFM of, 2199
cubic crystals, structure in glucose solutions, 616
Interaction energy analysis, α-helices of bacteriorhodopsin in DMPC, 115
Interfaces
air-water, lung surfactant phase transitions in films at, 2983
water and self-assembled lipid monolayers, surface dipole potential at, 2388
Ion channels. *see also* Specific ions
AMFE, electrostatics and binding in, 2327
cellular expression and electrical activity pattern, 2745
far-field analysis of coupled bulk and boundary layer diffusion towards, 2235
fluorescence ratio imaging combined with patch clamps in analysis, 48
formed by syringomycin E, cluster organization of, lipid bilayers, 2918
large mechanosensitive, EMC model of gating by mechanical force, *E. coli,* 2889
membrane, geometric shapes in, 22
model of phospholamban transmembrane domain, 1203
nAChR, kinked-helices model of, 242
solubilization of channel forming peptides, 256
synthetic, MD simulation of, 3
voltage-sensitive gating of, nonequilibrium response spectroscopy, 210
Ionic currents, skeletal myotubes, voltage clamp technique for mapping of, 2963
Ions, permeant and blocking, interaction in Kir channels, 2318
Iontophoresis, of skin, and electroporation, 679
Ion transport
in lipid bilayer membranes, 1358
in vestibule of membrane channels, BD simulations of, 37
IP_3. *see myo*-Inositol-1,4,5-trisphosphate
Iron, release from transferrin, continuum electrostatic model, 2747
Iron-sulfur cluster F_B, PsaC oriented with, 2029
I_{sK}, gating of, *Xenopus* oocytes, 2299
Islets of Langerhans, glucose diffusion in, 1722
Isocitrate dehydrogenase, reaction, bistability in, 1229
Isometric tension, active muscle fibers, phosphate and actomyosin during, 369
Isoprenoid chains, lateral diffusion coefficients of ubiquinones and plastoquinones in model bilayers, 1937

K

KAT1, N-terminus controls voltage-dependent gating, 2953
Kinetic studies, new era for, expanding time scales and, 2141
Kir 1.1a genes, assembly of inwardly rectifying potassium channels, 1821
KL4, effects on lung surfactant lipid monolayers, 1899
Kv2.1, inactivation of, rat expressed in *Xenopus* oocytes, 1779

L

LacI binding domain, DNA, dynamics of N*lac*-P variant, 413
Lactate dehydrogenase
inactivation, time-dependent effects of urea and TMAO on, 2658
TMAO counteracts urea effect on, 2666
Lamellar phases, phosphatidylcholine, effects of solutes on hydration forces and freezing, 1949
Lamm equations

finite-element solutions, fitting sedimentation data to, 444
sedimentation coefficients for small peptides, 466
Langmuir adsorption isotherms, phloretin adsorption to lipid membranes explained by, 1399
Lanthanide chelates, fluorescence microscopy of, 2210
Lanthanum block, calcium current in sympathetic neurons, 2278
Large mechanosensitive ion channel, *E. coli*, EMC model of gating by mechanical force, 2889
LDH. *see* Lactate dehydrogenase
Leukocytes, adherent, flow resistance and drag forces due to, postcapillary vessels, 3292
Ligands
colocalization on individual molecules of receptors, 2223
theory for rebinding at cell membrane surfaces, 1215
Light scattering, by porphyrin and chlorophyll *a* aggregates, resonance enhancement of, 2089
Linear dichroism spectra, nucleic acids, application of deVoe theory, 2249
Lipases, reactions catalyzed by, modeling of enantioselectivity, 1251
Lipid bilayers
cluster organization of ion channels formed by syringomycin E, 2918
DMPC, MD simulations of bacteriorhodopsin α-helices in, 115
DOPC, hydrocarbon core structure determined by X-ray diffraction, 2419
energetics of inclusion-induced deformations of, 1966
halide anion permeation through, 319
hybrid membranes, in air and water, IR and neutron reflectivity, 1388
ionic transport in, 1358
lamellar D spacing, and resolution of the vapor pressure paradox, 1421
magnetic partially oriented, NMR spectra from, determination of orientational order parameters, 1007
MD study of pores formed by OmpF, 2786
membrane steady-state compartmentalization by active proteins, 745
models of, lateral diffusion coefficients of ubiquinones and plastoquinones in, 1937
molecular order and dynamics in, polyunsaturated phospholipids, 879
phosphatidylcholine, polarity profiles in, 910
phospholipid
AFM imaging of degradation by PLA_2, 2398
magnetically aligned with positive ordering, 2405
pressure effects on lateral distribution of cholesterol in, 1864
pyridyl disulfide-capped, molecular orientation of cytochrome *c* on, 999
thermally induced pores in model fluid membrane, 1754
Lipid membranes
phloretin adsorption to, and the Langmuir adsorption isotherms, 1399
polarity profiles in, 910
Lipid monolayers
DPPC and DPPC/DPPG, partitioning of SP-A into, 1101
lung surfactant, effects of KL4 on, 1899
metal chelated, analysis of streptavidin crystals coordinated to, 2674
protein crystal growth on, characterized by ellipsometry and rigidity measurements, 2649
Lipid properties, effect on characteristics of lipid vesicles, 2996
Lipids
adhesion forces of, in a phospholipid membrane, MD simulations, 931
DOM mixtures with, gel-like phase in, 919
neutral, lateral diffusion of, 857
self-assembled monolayers, surface dipole potential at interface between water and, 2388
Lipid vesicles
extrusion pressure and lipid properties on characteristics of, 2996
features modulating transmembrane migration of hydrophobic peptides, 3023
Lipophilic ions, interaction with plasma membrane, electrorotation studies, 3031
Lipoproteins, plasma, native human and models, surface properties of, 869
Liposomes
giant, formation promoted by divalent cations, 2973
influenza virus fusion with, and morphology of HA, 55
polyethelyene glycol-grafted, hydration of, 1371
Localized dynamic light scattering, measurements in optical microscopy, 1541
Locomotion. *see* Chemotaxis; Migration
Looping, dynamics of, linear DNA molecules, 773
Loops, active site residues, movement in, triosephophate isomerase, 72
LRET. *see* Luminescence resonance energy transfer
Lumi intermediate, vibrational spectrum of, room temperature rhodopsin photo-reaction, 1492
Luminescence resonance energy transfer, measurements in myosin, 2451
Lung
effects of KL4 on surfactant lipid monolayers, 1899
mouse, microvascular water permeability, surface fluorescence, 2121
surfactant phase transitions in films at air-water interface, 2983
Lysozyme, low frequency Raman spectra and oriented DNA films, 1533

M

Macropores, appendageal, and electrical properties of skin, 843
Madin-Darby canine kidney cells, diffusion coefficients in lateral intercellular spaces of, 3302
Magnesium, calcium exchange with, effect on small domain of monomeric actin, 2474
Magnesium-ATPase, reversible inactivation by mechanical immobilization, myosin S1, 1465
Magnetic force fields, high, susceptibility of tubulin, birefringence and X-ray fiber diffraction study, 1509
Mapping
ionic currents in skeletal myotubes, voltage clamp technique for, 2963
relative microelastic, by AFM, living cells, 1564
MCF-10F, APT in, a hole burning study, 2680
MDCK cells. *see* Madin-Darby canine kidney cells
Mechanochemical coupling, myosin S1, reversible inactivation by mechanical immobilization, 1465
Melittin
backbone dynamics of, 138
effect on lateral diffusion of DPPC adsorbed on silica beads, 857
Membrane capacitance, chromaffin cell secretory responses measured by, 2100
Membrane channels
ion, geometric shapes in, 22
ion transport in vestibule of, BD simulations, 37
Membranes. *see also* Lipid bilayers
amphiphilic peptide insertion and folding affected by molecular dipoles, 2434
bending modulus, *Dictyostelium discoideum*, 514
binding of basic peptides and production of acidic lipid enriched domains, 731
cell
electric field pulse-induced permeabilization and fusogenicity

of, 1889
theory for ligand rebinding at surfaces of, 1215
clathrin-coated, spontaneous-curvature theory of, 2862
deformations, free energy of, 1966
DODPC, hydration of, 1908
electric properties of, fluorescence ratio imaging and patch clamp analysis, 48
electroporative dye uptake, mouse B cells, 98
lipid
polarity profiles in, 910
steady-state compartmentalization by active proteins, 745
localization of potassium channels by crystallization, 2159
mimics, ACTH peptide binding and structure in, NMR, 1871
PGLa in, NMR, 981
phospholipid, MD simulations of adhesion forces of lipids in, 931
skeleton structure observed by AFN, erythrocytes, 2171
structure determination using XSW, 1924
surface, prodan as probe, phospholipid phase states, 1984
tension and gramicidin channel kinetics, 328
Methionine, oxidation, loss of conformational stability in calmodulin upon, 1115
MgAMP-PNP, cross-bridges in presence of, permeabilized psoas muscle, 3072
Micelles
ACTH peptide binding and structure in membrane mimics, NMR, 1871
conformation of the ganglioside G_{M1} oligosaccharide chain, 309
ganglioside, extrusion and occlusion of water in, 3010
Microelastic mapping, relative. in living cells, by AFM, 1564
Microfilaments, driven, elastohydrodynamics of, 1043
Micromanipulation, localized dynamic light scattering, optical microscopy, 1541
Micropipets, verification of pico force transducer based on, 2080
Microscopy. *see also* Specific methods
BFP interferometry, 2D tracking of ncd motility by, 1074
EM and AFM, of DNA triplexes, 1015
of lanthanide chelates, 2210
localized dynamic light scattering measurements, 1541
near-field scanning optical, plasma membrane domains, 2184
Microtubules, single and bundled, birefringence of, 645
Migration. *see also* Chemotaxis
of neutrophils, oscillatory pericellular proteolysis and oxidant deposition during, 90
transmembrane, in lipid vesicles, of hydrophobic peptides, 3023
Minicircle, DNA, elastic rod model for DNA, 2515
Miniplasmids, DNA, thermal fluctuations in, 2545
Mitochondria
ATP transport through voltage-dependent ion channel, current fluctuation analysis, 2365
protein import, precursor-pore interactions and models of, 1732
single, imaging of a permeability transition pore in, 2129
Mobility, lateral, of NCAM, 297
Molecular dynamics simulations
adhesion forces of lipids in a phospholipid membrane, 931
alamethicin and melittin, 138
in biomolecular systems, 2744
explicit salt ions and protein stability, 2906
of FABP:stearic acid interactions, 681
influence of solvents on base stacking, 394
of monounsaturated ligands in FABPs, 694
reorganization energy of electron-transfer in bacterial PRCs, 182
of synthetic ion channels, 3
Molecular mechanics, studies on conformations of D4G, 3131
Molecular motions, making movies of, 2743
Mononucleosomes, tertiary structure of, 2515
Monte Carlo analysis, three dimensional obstructed diffusion, 2722
Monte Carlo minimization method, model of nAChR, 242
Motility, ncd, 2D tracking by back focal plane interferometry, 1074
Motor proteins, 2D tracking of ncd motility by back focal plane interferometry, 1074
M states, bR, regulation of voltage dependent-proton pumping by, 403
Muscle
active fibers, phosphate and actomyosin contractile cycle, 369
calcium transients in, calcium release flux determined from, 1694
contraction, kinetics of NTP binding and hydrolysis in, 3044
fibers, ATP analogs and posthydrolytic and force development steps, 3059
filaments, compliance and cross-bridges, 1611
insect flight
active cross-bridges bind to actin target zones in, X-ray diffraction, 1439
dynamics of connecting filaments in sarcomeres, 1473
luminal SR pH changes caused by calcium release, 290
NPM-reacted, behavior in Mg-free rigor solution, 1110
psoas
cross-bridges in presence of MgAMP-PNP, 3072
single skinned fibers of, viscosity and mechanics, 1428
thin filament cooperativity in shortening velocity, 1452
skeletal
myosin heads bound to actin and stiffness of, 2459
phosphorylation of myosin RLC and relaxation rates, 360
skinned fibers, calcium turnover in, 1640
smooth, vascular radius and tone of, 109
Myeloperoxidase, Raman microspectroscopy of, neutrophilic granulocytes, 3250
Myocardium, relaxed and tetanized, mitochondrial calcium in, 1579
Myocytes
cardiac, force regulation by calcium, frog, 1994
divalent cations and E-4031-sensitive repolarization current, 1278
Myofibrils, frog fast skeletal, ATPase and shortening rates in, 3120
Myoglobin, CO photodissociation in, computer simulation of, 789
Myosin
heads bound to actin and skeletal muscle stiffness in contraction, 2459
luminescence resonance energy transfer measurements in, 2451
phosphorylation of RLC and relaxation rates, 360
RLC, fluorescence polarization transients from rhodamine isomers on, 3093
RLCs, orientation, fluorescence polarization using IART isomers, 3083
S1
reversible inactivation by mechanical immobilization, 1465
transglutaminase-induced cross-linking between G-actin and, 953
Myotubes, skeletal, voltage clamp technique for mapping ionic currents in, 2963

N

NCAM. *see* Neural cell adhesion molecule
ncd, motility, 2D tracking of, by back focal plane interferometry, 1074
Nebulin, large fragments of, and interactions with actin, 349
Nernst-Planck flux equations, unstirred-layer transport number equations derived from, 2903
Nerves, terminals, synaptic depression and vesicle recycling kinetics after stimulation, 3003

Neural cell adhesion molecule, lateral mobility of, 297
Neuronal dynamics, new language for, periodic orbits, 2776
Neurons
fluorescence ratio imaging and patch clamp analysis of membrane electric properties, 48
sympathetic, surface charge and lanthanum block of calcium current in, 2278
Neutron diffraction, grazing incidence, phospholipids domains detected by, 2443
Neutron reflectivity, study of hybrid bilayer membranes in air and water, 1388
Neutrophils
effects of colchicine and paclitaxel on mechanical behavior of, 3282
migration of, oscillatory pericellular proteolysis and oxidant deposition, 90
Nickel-chelating lipids, 2D crystals of RNA polymerase on, 1522
N*lac*-P, dynamics of, LacI DNA binding domain variant, 413
NMDA channels. *see* *N*-Methyl-D-ASPARTATE CHANNEL
***N*-Methyl-D-aspartate channels**
open, two blocking sites in, 1305
voltage dependence of fractional calcium current in pore mutants, 1790
Nonequilibrium response spectroscopy, of voltage-sensitive ion channel gating, 210
Nuclear magnetic resonance
ACTH peptide binding and structure in membrane mimics, 1871
coiled-coil site-specific thermodynamics and transition kinetics, 3190
2d P^{31} exchange solid state, and lateral diffusion of neutral lipids, 857
PGLa in membranes, 981
pulsed-field gradient, diffusive transport through spherical interface, 2259
Nucleic acids, VCD, absorption and linear dichroism spectra, and DeVoe theory, 2249
Nucleoside triphosphates, kinetics of binding and hydrolysis in muscle contraction, 3044
Nucleosomes, topological approach to structure and dynamics, 2531

O

Oligosaccharide chains, in interactions of gangliosides with proteins, 1380
OmpF, MD study of pores formed in lipid bilayer, 2786
Optical chemical imaging, TMV, at 60nm resolution, 2076
Ordering, positive, phospholipid bilayers magnetically aligned with, 2405
Orientation
molecular, cytochrome *c* on pyridyl disulfide-capped phospholipid bilayers, 999
order parameters, magnetically oriented lipid bilayers, NMR spectra of, 1007
Orthophosphate, and actomyosin interaction, contractile cycle of active muscle fibers, 369
Osmotic pressure, control of voltage-induced permeabilization and gene transfer, 3015
Oxidants, oscillatory deposition of, during neutrophil migration, 90
Oxygen, entropy-driven oxygenation steps in hemoglobin, 2638

P

P22, scaffolding protein in procapsid size determination, 559
Paclitaxel, effects on mechanical behavior of neutrophils, 3282
PAI-1. *see* Plasminogen activator inhibitor-1
1-Palmitoyl-2-oleoyl-phosphatidylethanolamine, cholesterol mixture with, NMR and infrared spectroscopy, 899
Pancreas, glucose diffusion in isolated islet, 1722
PapA, polymers, assembly of bacterial adhesion pili, 623
Paracoccus denitrificans, cytochrome *c* oxidase, electrostatic calculations on, 708
Paramecium, computation of internal forces in cilia, 1658
Patch clamps
with potentiometric dye, membrane electric properties, 48
voltage distortion by amplifiers, 831
PB equation. *see* Poisson-Boltzmann equation
PC. *see* Phosphatidylcholines
PEG. *see* Polyethelyene glycol
Pentalysine, membrane binding of, and acidic lipid enriched domains, 731
Peptide-based gene delivery systems, for gene therapy, predicting effectiveness of, 2802
Peptides
amphiphilic, membrane insertion and folding affected by molecular dipoles, 2434
small, sedimentation coefficients for, 466
Periodic orbits, new language for neuronal dynamics, 2776
Permeability, microvascular endothelial water, measured by pleural surface fluorescence, 2121
Permeability transition pore, imaging in a single mitochondria, 2129
Permeabilization
electric field pulse induced, fusogenicity and, cell membranes, 1889
voltage-induced, osmotic pressure control of, 3015
Permeation, halide anions through phospholipid bilayers, 319
PFG NMR. *see* Nuclear magnetic resonance, pulsed-field gradient
PGLa, in membranes, NMR, 981
pH, GFP as intracellular indicator of, 1591
Phase behavior
cholesterol:POPE mixture, NMR and infrared spectroscopy, 899
effects of *n*-alkanes on phospholipid hexagonal phases, 944
gel-like phase in DOM-lipid mixtures, 919
of mixtures of rods and spheres, 669
Phase states, phospholipid, prodan as membrane surface fluorescence probe, 1984
Phloretin, adsorption to lipid membranes, and the Langmuir adsorption isotherms, 1399
Phosphate
depletion of, and actomyosin interaction, active muscle fibers, 369
inorganic, interactions with cardiac ryanodine receptor, 1296
Phosphatidylcholine
bilayers, polarity profiles in, 910
saturated, mixed chain, in-plane elasticity of, 338
Phosphatidylinositol 4,5-bisphosphate, membrane binding of basic peptides and lateral domains enriched in, 731
Phosphatidylserine, membrane binding of basic peptides and lateral domains enriched in, 731
Phospholamban, model of transmembrane domain, 1203
Phospholipase A_2, AFM imaging of phospholipid bilayer degradation by, 2398
Phospholipid/alkanethiol bilayer, in air and water, IR and neutron reflectivity, 1388
Phospholipid bilayers. *see* Lipid bilayers
Phospholipids
AFM imaging of bilayer degradation by PLA_2, 2398
domains detected by AFM and neutron diffraction, 2443
hexagonal phases, effects of *n*-alkanes on, 944
membrane, MD simulations of adhesion forces of lipids in, 931
phase states, prodan as membrane surface fluorescence probe, 1984
polyunsaturated, molecular order and dynamics in bilayers of, 879

Phosphorylation, of myosin RLC and relaxation rates, 360
Photoactivation, of rhodopsin, and H/D exchange in buried peptide groups, 192
Photochromic polypeptides, as models for photoreceptors, 2601
Photoreceptors, photochromic polypeptides as models for, 2601
Photosynthetic reaction centers
bacterial
protein modifications and triplet energy transfer, 2623
reorganization energy of electron-transfer in, 182
electron transfer and protein dynamics in, 2567
R. sphaeroides, cytochrome c_2 electron transfer to, 3226
Photosystem I
energy transfer and charge separation in, 2611
orientation of PsaC subunit, 2029
secondary pair charge recombination in, 3173
Photosystem II, protein environment surrounding tyrosyl radicals in, 2588
Phototransduction, recovery kinetics of, retinal rods, 803
Pico force transducer, micropipet based, verification of, 2080
Pilins, assembly of adhesion pili, *E. coli,* 623
PLA_2. *see* Phospholipase A_2
Plasma membranes
calcium-ATPase, halothane binding to, fluorescence spectroscopy, 974
domains imaged by near-field scanning optical microscopy, 2184
electrorotation studies of lipophilic ion interaction with, 3031
lateral mobility of NCAM, 297
Plasminogen activator inhibitor-1, latent, intramolecular distances in, 11
Plasticity, promiscuity, quasi-equivalence and, CPV, 639
Plastoquinones, lateral diffusion coefficients in model bilayers, 1937
Poisson-Boltzmann model, finite difference, electron transfer reorganization energies using, 1241
Poisson's equation, solutions for, geometric shapes in membrane ion channels, 22
Polarity profiles, in lipid membranes, 910
Polyacrylamide gel electrophoresis, circular DNA, effects of supercoiling on electrophoretic trapping, 3140
Polyamines, precipitation of DNA by, 381
Polyethylene glycol, hydration of liposomes grafted on, 1371
Poly(ethylene glycol)-cholesterol, sterically stabilized vesicles based on conjugates of, 3198
Polyethylene oxide, phase behavior of mixtures of rods and spheres, 669
Polystyrene microbeads, separation using DEP/G-FFF, 2689
POPE. *see* 1-Palmitoyl-2-oleoyl-phosphatidylethanolamine
Pores
channel, anion binding as probe of, CFTR, 1320
formed in lipid bilayer, by OmpF, MD study of, 2786
lining region of AChR, voltage-independent inhibition and, 2306
mitochondrial precursor protein import and, 1732
permeability transition, imaging of, in a single mitochondria, 2129
thermally induced proliferation in model fluid membranes, 1754
Porins, OmpF, MD study of pores formed in lipid bilayer, 2786
Porphyrins
depolarized resonance light scattering by aggregates of, 2089
macrocycle conformation conserved in hemoproteins, 753
macrocycle of, cytochrome P450 BM3 fatty acid-induced alteration, 3241
Potassium channels
inward-rectifier, interaction of permeant and blocking ions in, 2318
KAT1 N-terminus controls voltage-dependent gating, 2953
Kv2.1, inactivation of, 1779
maxi
calcium-activated, amine action on, 722
internal barium block of, human vas deferens epithelial cells, 199
membrane localization by crystallization method, 2159
ROMK1 (Kir 1.1a), assembly of, 1821
selectivity filter of, modulation of C-type inactivation, 1840
Shaker, permeant ion binding site located between two gates of, 1808
P-pili, assembly of, *E. coli,* 623
Pressure, hydrostatic, effects on lateral distribution of cholesterol in bilayers, 1864
2′,3′-dideoxy-2′,3′-didehydroguanine nucleoside, molecular mechanics studies on conformations of, 3131
Procapsids, size determination, scaffolding protein in, P22, 559
Prodan, membrane surface fluorescence probe, phospholipid phase states, 1984
Promiscuity, plasticity, quasi-equivalence and, CPV, 639
Protein A, morphology and surface forces of, 455
Protein Dipole Langevin Dipoles, study of protein relaxation and charge-charge interactions and dielectric constants, 1744
Protein films, cytochrome *c* orientation on pyridyl disulfide-capped phospholipid bilayers, 999
Protein-protein interactions
BD simulation of DNA looping, 773
in icosahedral viruses, 546
Proteins
active, steady-state compartmentalization of lipid membranes by, 745
ANS anion binding via ion pairs, 422
crystal growth on lipid monolayer, ellipsometry and rigidity measurements, 2649
dynamics in the PRC, 2567
environment surrounding tyrosyl radicals in photosystem II, 2588
explicit salt ions and stability, MD simulations, 2906
folding, MD simulations of bacteriorhodopsin α-helices in DMPC, 115
interaction of gangliosides with, 1380
interactions with DNA, visualization with AFM, 2840
intramolecular distances in, 11
low-resolution structures in solution, SAXS, 2760
mitochondrial import, precursor-pore interactions and models of, 1732
modifications and triplet energy transfer, bacterial PRC, 2623
multivariate curve resolution and intermediate structures in folding, 2876
relaxation, charge-charge interactions and dielectric constants, 1744
Proteolysis, oscillatory pericellular, during neutrophil migration, 90
Protofilaments, tubular fibrils, structural analysis of Aβ(1–40), 537
Proton fluxes, and SR luminal pH changes caused by calcium release, 290
Proton pumps, light-induced, voltage dependence of, bR, 403
Proton transfer
intramolecular, carbonic anhydrase III, 3182
Paracoccus denitrificans cytochrome *c* oxidase, 708
PsaC, subunit, photosystem I, 2029
Purkinje cells, T- and L- type calcium channel contributions to E-C coupling, 1830

Q

Quasi-equivalence
in bacterial flagellar filaments, 569
contributions of Don Caspar, 534

energetics of, 546
procapsids size determination, scaffolding protein in, P22, 559
promiscuity, plasticity and, CPV, 639
refinement of HBV capsid structure on parallel supercomputers, 576

R

Raman microspectroscopy, of cytochrome b_{558} and myeloperoxidase, neutrophilic granulocytes, 3250
Reaction kinetics, monitored on microsecond time scale by continuous-flow capillary mixing method, 2714
Receptors
2D affinity for ligand, force dependence of, using centrifugation, 492
ligand colocalization on individual molecules of, 2223
theory for ligand rebinding at cell membrane surfaces, 1215
Redundancy, of linker histone tails and N-tails of histone H3 in chromatin, 2830
Regulatory light chains, myosin, phosphorylation of, and relaxation rates, 360
Relaxation, rates, and phosphorylation of myosin RLC, 360
Reorganization energy
electron transfer, calculation using finite difference PB model, 1241
of electron-transfer in bacterial PRCs, 182
Replication, of DNA, characteristics of catenanes applied to, 2815
Repolarization current, E-4031-sensitive, effects of divalent cations on, 1278
Resonance energy transfer, cys^{133} localization using, rabbit skeletal troponin I, 3111
Rhodamine, isomers on myosin RLC, fluorescence polarization transients from, 3093
Rhodobacter sphaeroides, cytochrome c_2 electron transfer to PRC of, 3226
Rhodopseudomonas viridis
electron transfer reorganization energies using finite difference PB model, 1241
low temperature electron transfer from cytochrome *c* in, 1135
Rhodopsin
photoactivation of , and H/D exchange in buried peptide groups, 192
recovery kinetics of retinal rod phototransduction, 803
room temperature photo-reaction, vibrational spectrum of the Lumi intermediate, 1492
Rhodospirillium rubrum, photosynthetic antenna of, stability of transmembrane helices, FTIR, 988
Ribosomes, tRNA movement through, 589
Rigidity, protein crystal growth on lipid monolayers characterized by, 2649
RLC. *see* Regulatory light chain
RNA, transfer, movement through ribosomes, 589
RNA polymerase
force generation in, 1186
motion along DNA, stochastic model of, 1169
yeast, 2D crystals on nickel-chelating lipids, 1522
Rods
mixtures of spheres and, phase behavior of, 669
retinal, recovery kinetics of phototransduction, 803
ROMK1, inwardly rectifying potassium channels, assembly of, 1821
ROMs. *see* Oxygen metabolites, reactive
Rps. virdis. *see Rhodopseudomonas viridis*
Ryanodine receptors
adaption of, and calcium ion dynamics, 1149
1 and 2, inactivation of, 2352
cardiac, interactions of ATP, ADP and P_i with, 1296

S

Salmonella typhimurium, growth rate of the flagellar hook, 436
Salt ions, explicit, importance for protein stability, MD simulations, 2906
Sapphire plate, ultrasmooth, new substrate for AFM DNA observations, 1654
Sarcomeres, myofibrillar, dynamics of connecting filaments in, 1473
Sarcoplasmic reticulum
ATP and calcium-activated anion channel in, 2335
load, and calcium ion dynamics, 1149
luminal pH changes caused by calcium release, 290
in situ, luminal calcium and CRC activity of, 1795
SAXS. *see* Small-angle X-ray solution scattering
SC3, characterization at hydrophobic/hydrophilic interfaces, 2059
Scaffolding protein, in procapsid size determination, P22, 559
Scanning force microscopy, linker histones and histone H3 in chromatin structure, 2823
Scanning near-field microscopy, optical chemical imaging of TMV, 2076
Schizophyllum commune, SC3 characterization, 2059
Secretion, responses of chromaffin cells measured by membrane capacitance and amperometry, 2100
Sedimentation
coefficients for small peptides, 466
data fitting to finite-element solutions of the Lamm equation, 444
E-Selectin, binding to carbohydrate ligand, 2D affinity measured by centrifugation, 492
Selectivity filters, potassium channels, modulation of C-type inactivation, 1840
Self-assembled monolayers, lipid, surface dipole potential at interface between water and, 2388
Sensory transduction, assembly of cyclic-nucleotide-activated cation channel subunits, 1333
SERVA blue G, electroporative transfer of, 98
Severing, gelsolin binding site on F-actin and, 764
Shortening rates, frog fast skeletal myofibrils and ATPase, 3120
Shortening velocity, thin filament cooperativity in, skeletal muscle fibers, 1452
Sickle-cell anemia, stability of HbS double strands, 655
Single particle tracking, lateral mobility of NCAM, plasma membrane, 297
Skin
electrical properties of, 843
low voltage electroporation of, 679
Small-angle X-ray solution scattering, proteins, low-resolution structures in solution, 2760
Sodium, validity of reduced cotransport models, 816
Sodium channels, human cardiac, slow inactivation in, 2945
Sodium,potassium-ATPase, fast transient currents in, induced by ATP concentration jumps from DMB-caged ATP, 2285
Solubilization, gel-like phase in DOM-lipid mixtures, 919
Solutes, effects on hydration forces and freezing properties of lipid lamellar phases, 1949
Solution, proteins in, low-resolution structures of, SAXS, 2760
Solution dynamics, of calmodulin, 1622
Solvents, influence on base stacking, 394
Sorbitol, effects on hydration forces and freezing properties of lipid lamellar phases, 1949
SP-A. *see* Surfactant protein A
Spectroscopy. *see* Specific type of spectroscopy
Spermidine, precipitation of DNA by, 381
Spermine, precipitation of DNA by, 381
Spheres, mixtures of rods and, phase behavior of, 669
Spontaneous-curvature theory, of clathrin-coated membranes, 2862
SR. *see* Sarcoplasmic reticulum

Stability, protein, importance of explicit salt ions, MD simulations, 2906
Stalk contraction, high speed video cinematography of, *Vorticella convallaria*, 487
Stearic acid, MD simulations of FABP interactions with, 681
Stiffness, of skeletal muscle, and myosin heads bound to actin, 2459
Stimulus gradients, spatial and temporal sensing of, by free swimming bacteria, 2272
Streaming potentials, in gramicidin channels, 2912
Streptavidin, crystals coordinated to metal chelated lipid monolayers, 2674
Structural biology, contributions of Don Caspar, 534
Sucrose, effects on hydration forces and freezing properties of lipid lamellar phases, 1949
Supercoiling
DNA, 2016
effects in electrophoretic trapping, circular DNA, PAGE, 3140
Surface charge, calcium current in sympathetic neurons, 2278
Surface forces, protein A, surface morphology and, 455
Surface properties, of human plasma lipoproteins and lipoprotein models, 869
Surfactant
lung
effects of KL4 on lipid monolayers, 1899
phase transitions in films at air-water interface, 2983
nonionic, sterically stabilized vesicles based on conjugates of, 3198
Surfactant protein A, pulmonary, partitioning into lipid monolayers, 1101
Synaptic depression, kinetics of, vesicle recycling and, after stimulation of nerve terminals, 3003
Syringomycin E, cluster organization of ion channels formed by, lipid bilayers, 2918

T

Talin, bending modulus and adhesion energy of *Dictyostelium* lacking, 514
Telomere repeat sequence, insertion of, effect on plasmid DNA condensation by cobalt (III) hexaammine, 1484
Tension, effect on the kinetics of gramicidin channels, 328
Tension redevelopment kinetics, skeletal muscle, calcium regulation of, 2005
Tetracycline, resistance of Gram-negative bacteria, 63
Tet repressor, and tetracycline resistance of Gram-negative bacteria, 63
Thermal imaging, receptor-activated heat production in single cells, 82
Thin filament, cooperativity in shortening velocity, psoas muscle fibers, 1452
Thyrotropin-releasing hormone, extracellular loops in receptor binding, 1087
TMAO. *see* Trimethylamine-*N*-oxide
TMV. *see* Tobacco mosaic virus
Tobacco mosaic virus
coat protein, atomic model of four-layer aggregate, 604
3D structure of stacked disk aggregate, 595
optical chemical imaging at 60nm resolution, 2076
phase behavior of mixtures of rods and spheres, 669
structural basis of disassembly, 633
Tobamovirus. *see* Tobacco mosaic virus
Tomography, electron, of ice-embedded cells, *Pyrobaculum aerophilum*, 1031
Transducers, pico force, micropipet based, verification of, 2080
Transesterification, lipase-catalyzed reactions, modeling of enantioselectivity, 1251
Transferrin, iron release from, continuum electrostatic model, 2747
Translation, tRNA movement through ribosomes, 589
Trapping
DNA, in nonuniform oscillating electric fields, 1024
elastohydrodynamics of driven microfilaments, 1043
electrophoretic, supercoiling and, circular DNA, PAGE, 3140
Trehalose, effects on hydration forces and freezing properties of lipid lamellar phases, 1949
Trimethylamine-*N*-oxide
counteracts urea effect on LDH, 2666
urea and, time-dependent effects on LDH inactivation, 2658
Triosephophate isomerase, dynamics of, 72
Troponin I, skeletal, Cys^{133} localization, resonance energy transfer, 3111
TRS. *see* Telomere repeat sequence
Tryptophan, phosphorescence, tyrosine quenching of, in *B. stearothermophilus* G3PD, 3165
Tubulin, high magnetic force fields and, birefringence and X-ray fiber diffraction study, 1509
Twisting, DNA molecules, 1609
Tyrosine
orientations of Tyr21 and 24 in coat subunits of *Ff* filamentous virus, 3217
quenching of tryptophan phosphorescence in *B. stearothermophilus* G3PD, 3165
Tyrosyl radicals, protein environment surrounding, photosystem II, 2588

U

Ubiquinones, lateral diffusion coefficients in model bilayers, 1937
Ultracentrifugation, fitting sedimentation data to finite-element solutions, 444
Urea
TMAO and, time-dependent effects on LDH inactivation, 2658
TMAO counteracts, on LDH, 2666

V

Vapor pressure paradox, resolution of, substrate roughness and D spacing, 1421
VDAC, sensor regions translocation during gating processes, 2926
Vesicles
bR, mechanism of formation, electron cryomicroscopy, 1409
kinetics of synaptic depression and recycling of, after stimulation of nerve terminals, 3003
lipid, and extrusion pressure, 2996
size distributions measured by flow FFF, 3264
sterically stabilized, based on nonionic surfactant, cholesterol and M-PEG-Chol conjugates, 3198
Vibrational circular dichroism spectra, nucleic acids, deVoe theory and, 2249
Vibrational spectrum, Lumi intermediate, of the room temperature rhodopsin photo-reaction, 1492
Video cinematography, high speed, *Vorticella convallaria* stalk and zooid contraction, 487
Viruses
assembly, refinement of HBV capsid structure on parallel supercomputers, 576
disassembly, structural basis of, TMV, 633
icosahedral, protein-protein interactions in, 546
Viscoelasticity, of living embryonic tissues, 2227
Viscosity, effect on mechanics of muscle fibers, 1428
Voltage clamp technique, for mapping ionic currents in skeletal myotubes, 2963
Voltage-dependent mitochondrial ion channel, ATP transport through, studied by current fluctuation analysis, 2365
Vorticella convallaria, stalk and zooid contraction, high-speed

video of, 487

W

Water
extrusion and occlusion in ganglioside micelles, 3010
interfaces between self-assembled lipid monolayers and, surface dipole potential at, 2388
microvascular permeability measured by pleural surface fluorescence, 2121
Wiggling, elastohydrodynamics of driven microfilaments, 1043

X

***Xenopus* oocytes**
gating of I_{sK}, 2299
spatial distribution of calcium activated Cl channels, 1286
X-ray crystallography
cubic insulin crystals in glucose solutions, 616
TMV, atomic model of four-layer aggregate, 604
X-ray diffraction
active cross-bridges bind to actin target zones, insect flight muscle, 1439
hydrocarbon core structure determined by, DOPC bilayers, 2419
synchrotron, study of chick corneas, 995
X-ray fiber diffraction, susceptibility of tubulin to high magnetic force fields, 1509
X-ray standing waves, variable-period, membrane structure determination using, 1924
XSW. *see* X-ray standing waves

Z

Z-DNA, variability and intermolecular interactions of synthetic hexamer, 2482
Zooid contraction, high speed video cinematography of, *Vorticella convallaria*, 487